Service Manual

DVR-5610

Revision	Description	Date
0.1	Draft	09/09/2003

Approvals:

_____ _____

_____ _____

Marketing Date

_____ _____

_____ _____

Engineering Date

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1.0 Summary specifications

Performances Specification

Display type	One 0.8” 1280 x 720 DLP.
Resolution supported	VGA (640x480) expansion. SVGA (800x600) expansion. DTV(1280x720 p) native. HDTV (1920x1080 i). compression
Colors	16.7M
Bandwidth	80 MHz
Weight	< 130 Lb.
Image size (diagonal)	56 inch.
Brightness	400 nits
Brightness uniformity	Better than 80%
Projection lens	Fixed.
Projection method	Rear.
Contrast ratio	1000:1 (full-on, full-off)
Computer Compatibility	IBM PC or Compatibles(VGA, SVGA, XGA), DVI input.
Video Compatibility	NTSC/NTSC4.43, PAL, PAL 60,
PIP	YES
POP	YES
DCDi	YES
H-Sync , V-Sync	30~60KHz, 50~85Hz.
Safety Certification	UL,C-UL, FCC Class B,
Operation temperature	5~35 °C
Dimensions	1381mm(W) x 1113mm (H) x 480mm (D)
Power requirements	90-264VAC,50-60HZ,autoranging
Power Consumption	300W max, 250W typical Standby < 3W
Lamp	UHP , 120W.
Audio	Speaker 15W x 2 BBE system and SRS system
Remote control	Hand-held remote.

Data signal level	Analog RGB: 0.7Vpp/75 Ω. H,V sync : Separate, TTL level, negative or positive
Digital Visual Interface	Digital encoder signal : High 5V , Low 0V.
Video signal level	Composite video : 1.0Vpp/75Ω, Sync negative. S-video Y : 1.0Vpp/75Ω, Sync negative. C : NTSC 0.286Vpp/75Ω. PAL 0.3Vpp/75Ω. Components video Y : 1.0Vpp/75 ohm, Sync negative. Pb/Cb : 0.7Vpp/75 ohm. Pr/Cr : 0.7Vpp/75 ohm.
Audio signal level	0.5Vrms/47kΩ.
Input terminal (Side)	PC: D-sub 15pin x 1 AV: S-Video x 1, Composite Video x 1 Audio: 3.5mm stereo mini jack x 1 .
Input terminal (Rear)	PC: D-Sub 15pin and DVI AV: S-Video x 2, Composite Video x 2,YpbPr x 2 RF : F- TYPE x 1 Audio: 3.5mm stereo mini jack x 1for D-sub 15pin RCA (Red/White) x 1 for DVI RCA (Red/White) x 2 for video RCA (Red/White) x 2for componet
Out terminal	AUDIO : RCA x 1sets , Earphone – Main x 1 and Sub x 1 (Side)

2.0 Introduction

The DVR5610 is a Rear Projection multi purpose display unit integrating DLP(Digital Light Processing) technology that is targeted for multi media application and data processing applications. As such it will excel in displaying real time video and graphics.

2.1a Digital Light Processing(DLP) by Texas Instruments

DLP5610 is a projection unit using a Texas Instruments' Digital Light Processing(DLP) technology optical engine.
DLP system is constructed with the 1280 x 720 -DME(Digital Multi- media Engine) using s one- chip Digital Micromirror Device(DMD)

2.1.b DCDi deinterlacing/enhancement chipset

By Using FLI2300 video processing of Faroudja , Its feature including DCDi deinterlacing, reverse 3:2 pulldown film mode, motion adaptive 3D video noise reduction, cross-color artifact suppression and nonlinear enhancement functions.

2.2 Key Features

Optical

- Philips UHP-120W AC lamp system
- 400 nits using 0.8" HD2 DLP.
- 80% ANSI brightness uniformity (9pt ANSI)
- 1000:1 contrast ratio (full-on ,full-off)

Mechanical

- 1381mm(W) x 1113mm (H) x 480mm (D)
- The weight less than 130 lbs.
- "Four point" foot system for stability
- On screen display for inputs source select, keypads inputs intuitive
- Target noise level less than 33db
- Detachable connectors.(A/V : include Video phone jack , S-video & Audio phone jack, Earphone jack, (Data include Analog Mini D-sub 15pin, Digital DVI 24pin). and RF input.

Electrical

- Dual DB-15pin connector for computer input Rear x1 , Front x1, 1280 x 720 native resolution)
- Digital DVI 24pin for computer input.
- Video input (3sets Video RCA jacks, 3sets S-video mini Din, 2set Components/HDTV video.
- Audio input(6 sets Audio RCA jacks , Phone jack x 2sets for Data).

- NTSC, NTSC4.43, and PAL video compatible
- Lamp standby feature.
- 2 split of PIP/POP feature.
- 1x12, 1+ 7 and side by side picture.
- Design in SRS/BBE system.
- Two tuners for Cable and air TV.

Power Supply

- Auto-ranging from 90 to 264 VAC @ 50 to 60 Hz
- Power consumption :300watts max. ,250watts typical.

Packaging

- Cardboard with foam inserts
- Anti-static plastic bag protects unit

2.3 Supplied Accessories

- 6.5 ft. IEC detachable Power cord.
- 6.5 ft. standard mini D-sub 15pin VGA cable.
- 6.5 ft. RCA to RCA cable.(Video/Audio only)
- Remote control, and two AAA batteries.
- User Manual.
- Warranty Card.

2.4 Service

- MTBF estimated 20,000 hours min.
- Lamp life 6000 hours (As Philips definition)
- User replacement parts
    - Lamp module
    - Clean air filters
    - Service center replacement parts
    - Optical engine assembly.
    - Electronics/Power supply module/Ballast module.

- Fans.
- RS232 download.

2.5 Safety

- UL/CUL
- FCC class B
- Locked rotor detection – auto shutdown

3.0 Optical

The optical specifications are divided into component specifications and projector performance specifications.

3.1 Illumination & Imaging Optics

3.1.1 Projection Lens

Specification	Units	Minimum	Maximum	Typical	Notes
Fixed lens	F #			2.5	
Focal length	Mm			13.2	
Distortion	%			<1.0	
MTF(36lp/mm)					
Center	%	>80			
Lateral color				<1 pixel	

3.1.2 Color wheel

Specification	Units	Minimum	Maximum	Typical	Notes
Number of pairs					
Color segments	deg			G: 55 R: 75 B: 50 G: 55 R: 75 B: 50	

3.1.3 LAMP-Philips

Specification	Units	Minimum	Maximum	Typical	Notes
Lamp Type / Ballast					Philips UHP 120W/1.3 Philips EUC 120P/H11(H00)
Life				6000hrs	As Philips definition

3.2 Brightness,Uniformity,Contrast

Specification	Units	Minimum	Maximum	Typical	Notes
White field	nits	TBD	360	400	Using ANSI 9 point avg.
Uniformity Brightest Dimmest	Percent	>80%		>85%	Using ANSI 9 point
Contrast ratio	Ratio			1000:1	Dark room measurement (full-on , full-off)

Note: Specifications TBD at prototype phase

3.3 Color

Specification	Units	Minimum	Maximum	Typical	Notes
Color Temperature	K			7500	
White color	CIE x,y				
	x	0.265	0.325	0.295	
	y	0.314	0.374	0.344	
Red color					
	x	0.629	0.689	0.659	
	y	0.317	0.377	0.347	
Green color					
	x	0.274	0.334	0.304	
	y	0.556	0.616	0.586	

Specification	Units	Minimum	Maximum	Typical	Notes
Blue color					
	x	0.114	0.174	0.144	
	y	0.057	0.117	0.087	
Color Uniformity △(u',v')			0.015	<0.010	

Note: The color values and uniformity tolerances are to be measured using the 9pt. ANSI standard.

3.4 Image

Specification	Units	Minimum	Maximum	Typical	Notes
Viewable screen size Diagonal Width Height	Inch mm mm mm			56"(16:9) 480 1381 1113	
Screen Type Gain				 4.0	Two-part screen composed of a front UCS type lenticular and a back fresnel lens.
Viewing angle Horizontal Vertical	degree			 50 18	Relative to normal axis of screen
Viewable Pixel	Pixel	1270x710	1280x720		Overscan
Geometric distortion	pixel		5	0	Relative to the frame edge

Note: Specifications TBD at prototype phase

3.5 DMD

3.5.1 Resolution and Display Type

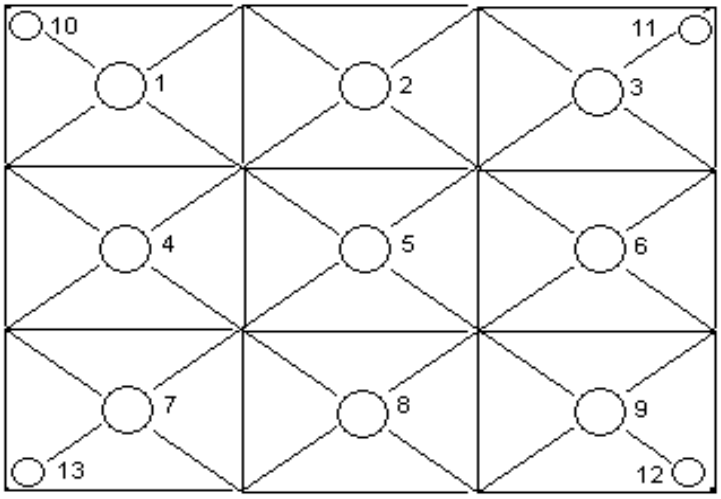
Specification	Units	Maximum	Minimum	Typical	Notes
Resolution					Native 1280x720
Horizontal				1280	
Vertical				720	
Display Type					DLP 0.8” HD2

3.5.2 Defects

SEQ #	TEST	SCREEN	ACCEPTANCE CRITERIA
1	Major Dark Blemish	Blue 90	No visible blemishes darker than Blue 90
2	Dark Pixel	Blue 90 Zoned Screen	≦1 dark pixel allowed in Zone A ≦4 dark pixel allowed in ZoneS A+B No adjacent dark pixels
3	Major Light Blemish	Gray 10	No blemishes brighter than Gary 10
4	Light Pixel	Gray 10	No pixels brighter than Gary 10
5	Minor Blemishes	White or Black	Total of Dark and Light Blemishes ≦ 6
6	Unstable Pixel	Red Ramp Screen (or any other)	No unstable Pixels

3.6 Definitions

The full white pattern is defined as an all white screen produced by 0.7V video input to R,G,B.



Note: All measurements are done in a darkened room. Contrast measurements are done using a full white screen and a full black screen.

Note: The uniformity calculations for brightnessis to be done using the following formula:

Brightest: [(Max-Average Brightness)/Average Brightness]*100

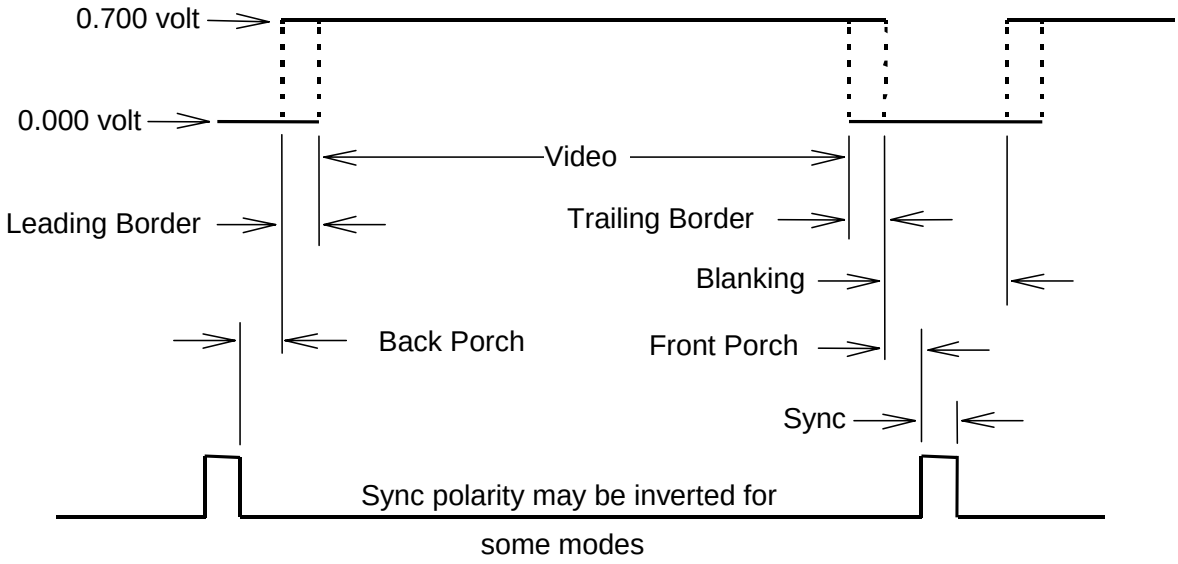
Dimmest: [(Average Brightness-Min)/Average Brightness]*100

4.2 Input and Output Signal Levels

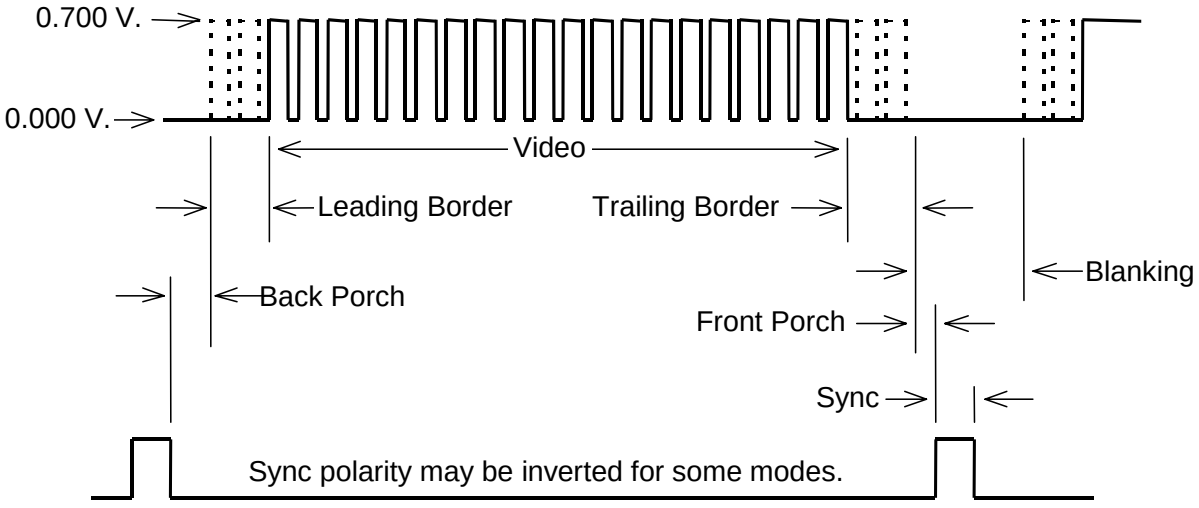
Specification	Units	Minimum	Maximum	Typical	Notes
Video input amplitude.					
Composite video (CVBS) Sync negative.	V p-p			1.0	75 ohm.
S-video.					
Luminance (Y) Sync negative.	V p-p			1.0	75 ohm.
Chrominance (C) NTSC color burst signal. PAL color burst signal.	 V p-p V p-p			 0.286 0.3	 75 ohm. 75 ohm.
Components video.					
Luminance (Y) Sync negative.	V p-p			1.0	75 ohm
Chrominance (Pb/Cb/B-Y)	V p-p			0.7	75 ohm
Chrominance (Pr/Cr/R-Y)	V p-p			0.7	75 ohm
Audio input amplitude					
R/L audio input.	V rms			0.5	47K ohm
Frequency					
NTSC Video Horizontal Vertical	MHz KHz Hz		6.0 15.734 60		640 x 480 interlace
PAL Video Horizontal Vertical	MHz KHz Hz		8.0 15.625 50		640 x 480 interlace
Components Video(1080i) Horizontal Vertical	MHz KHz Hz		74.25 33.75 60/50		1920 x 1080 interlace
Components Video(720p) Horizontal Vertical	MHz KHz Hz		74.25 45 60		1280 x 720 progressive
Components Video(480p) Horizontal Vertical	MHz KHz Hz		27 31.469 59.94		progressive
Dot clock	MHz		80		
Horizontal frequency	kHz	30	60		
Vertical frequency	Hz	50	85		
Sync lock					Will not lose sync lock with signal inputs within stated frequency range.

Specification	Units	Minimum	Maximum	Typical	Notes
Total pixels per line	Pixels				1280displayed
Active vertical lines	# of HS				720displayed

Horizontal Timing Intervals



Vertical Timing Intervals



4.3 Video Compatibility & Re-sizing

Re-sizing

Specification	Units	Minimum	Maximum	Typical	Notes
Total pixels per line	Pixels	640	1920	1280	1280 displayed
Active vertical lines	# of HS	350	1080	720	720 displayed
Resizing		**From**	**To**		
Video		NTSC/PAL /SECAM/ YPbPr/YCbCr High TV	4:3 Full screen 16:9		

Data

Mode Name(s) Used	Horiz. Res.	Vert. Res.
Native Mode	1280	720
TV Video Modes		
NTSC TV mode	700	525
PAL TV mode	700	625
VGA Modes		
VGA Text	720	400
VESA Modes		
VGA/60 Hz	640	480
VGA/72 Hz	640	480
VGA/75 Hz	640	480
VGA/85 Hz	640	480
VGA/72 Hz	640	480
SVGA/56 Hz	800	600
SVGA/60 Hz	800	600
SVGA/72 Hz	800	600
SVGA/75 Hz	800	600
SVGA/85 Hz	800	600
XGA/60 Hz	1024	768
XGA/70 Hz	1024	768
XGA/75 Hz	1024	768

Video

NTSC/ NTSC4.43	Chroma subcarrier frequency, 3.58 MHz & 4.43 MHz
PAL	CCIR, Chroma subcarrier frequency, 4.43 MHz
Components input (YPbPr)(YCbCr)	HDTV compatible (480i/480p/720p/1080i).

TVs Channel Table.

NTSC:

	TV	CATV	Picture Carrier (MHz)

	CH	CH	TV/STD	CATV HRC	CATV IRC
1	2	2	55.25	54.00	55.25
2	3	3	61.25	60.00	61.25
3	4	4	67.25	66.00	67.25
4		1	73.25	72.00	73.25
5	5	5	77.25	78.00	79.25
6	6	6	83.25	84.00	85.25
7		95/A-5	91.25	90.00	91.25
8		96/A-4	97.25	96.00	97.25
9		97/A-3	103.25	102.00	103.25
10		98/A-2	109.25	108.00	109.25
11		99/A-1	115.25	114.00	115.25
12		14/A	121.25	120.00	121.25
13		15/B	127.25	126.00	127.25
14		16/C	133.25	132.00	133.25
15		17/D	139.25	138.00	139.25
16		18/E	145.25	144.00	145.25
17		19/F	151.25	150.00	151.25
18		20/G	157.25	156.00	157.25
19		21/H	163.25	162.00	163.25
20		22/I	169.25	168.00	169.25
21	7	7	175.25	174.00	175.25
22	8	8	181.25	180.00	181.25
23	9	9	187.25	186.00	187.25
24	10	10	193.25	192.00	193.25
25	11	11	199.25	198.00	199.25
26	12	12	205.25	204.00	205.25
27	13	13	211.25	210.00	211.25
28		23/J	217.25	216.00	217.25
29		24/K	223.25	222.00	223.25
30		25/L	229.25	228.00	229.25
31		26/M	235.25	234.00	235.25
32		27/N	241.25	240.00	241.25
33		28/O	247.25	246.00	247.25
34		29/P	253.25	252.00	253.25
35		30/Q	259.25	258.00	259.25
36		31/R	265.25	264.00	265.25
37		32/S	271.25	270.00	271.25
38		33/T	277.25	276.00	277.25
39		34/U	283.25	282.00	283.25
40		35/V	289.25	288.00	289.25
41		36/W	295.25	294.00	295.25
42		37/AA	301.25	300.00	301.25
	TV CH	CATV CH	Picture Carrier (MHz)		
			TV/STD	CATV HRC	CATV IRC
44		39/CC	313.25	312.00	313.25
45		40/DD	319.25	318.00	319.25
46		41/EE	325.25	324.00	325.25
47		42/FF	331.25	330.00	331.25
48		43/GG	337.25	336.00	337.25
49		44/HH	343.25	342.00	343.25
50		45/II	349.25	348.00	349.25
51		46/JJ	355.25	354.00	355.25

52		47/KK	361.25	360.00	361.25
53		48/LL	367.25	366.00	367.25
54		49/MM	373.25	372.00	373.25
55		50/NN	379.25	378.00	379.25
56		51/OO	385.25	384.00	385.25
57		52/PP	391.25	390.00	391.25
58		53/QQ	397.25	396.00	397.25
59		54/RR	403.25	402.00	403.25
60		55/SS	409.25	408.00	409.25
61		56/TT	415.25	414.00	415.25
62		57/UU	421.25	420.00	421.25
63		58/VV	427.25	426.00	427.25
64		59/WW	433.25	432.00	433.25
65		60/XX	439.25	438.00	439.25
66		61/YY	445.25	444.00	445.25
67		62/ZZ	451.25	450.00	451.25
68		63/AAA	457.25	456.00	457.25
69		64/BBB	463.25	462.00	463.25
70		65/CCC	469.25	468.00	469.25
71	14		471.25		
72		66	475.25	474.00	475.25
73	15		477.25		
74		67	481.25	480.00	481.25
75	16		483.25		
76		68	487.25	486.00	487.25
77	17		489.25		
78		69	493.25	492.00	493.25
79	18		495.25		
80		70	499.25	496.00	499.25
81	19		501.25		
82		71	505.25	504.00	505.25
83	20		507.25		
84		72	511.25	510.00	511.25
85	21		513.25		
86		73	517.25	516.00	517.25
87	22		519.25		
88		74	523.25	522.00	523.25
89	23		525.25		
90		75	529.25	528.00	529.25
91	24		531.25		
92		76	535.25	534.00	535.25
93	25		537.25		
	TV CH	CATV CH	Picture Carrier (MHz)		
			TV/STD	CATV HRC	CATV IRC
94		77	541.25	540.00	541.25
96		78	547.25	546.00	547.25
97	27		549.25		
98		79	553.25	552.00	553.25
99	28		555.25		
100		80	559.25	558.00	559.25
101	29		561.25		
102		81	565.25	564.00	565.25
103	30		567.25		

104		82	571.25	570.00	571.25
105	31		573.25		
106		83	577.25	576.00	577.25
107	32		579.25		
108		84	583.25	582.00	583.25
109	33		585.25		
110		85	589.25	588.00	589.25
111	34		591.25		
112		86	595.25	594.00	595.25
113	35		597.25		
114		87	601.25	600.00	601.25
115	36		603.25		
116		88	607.25	606.00	607.25
117	37		609.25		
118		89	613.25	612.00	613.25
119	38		615.25		
120		90	619.25	618.00	619.25
121	39		621.25		
122		91	625.25	624.00	625.25
123	40		627.25		
124		92	631.25	630.00	631.25
125	41		633.25		
126		93	637.25	636.00	637.25
127	42		639.25		
128		94	643.25	642.00	643.25
129	43		645.25		
130		100	649.25	648.00	649.25
131	44		651.25		
132		101	655.25	654.00	655.25
133	45		657.25		
134		102	661.25	660.00	661.25
135	46		663.25		
136		103	667.25	666.00	667.25
137	47		669.25		
138		104	673.25	672.00	673.25
139	48		675.25		
140		105	679.25	678.00	679.25
141	49		681.25		
142		106	685.25	684.00	685.25
143	50		687.25		
144		107	691.25	690.00	691.25
	TV CH	CATV CH	Picture Carrier (MHz)		
			TV/STD	CATV HRC	CATV IRC
145	51		693.25		
146		108	697.25	698.00	697.25
148		109	703.25	702.00	703.25
149	53		705.25		
150		110	709.25	708.00	709.25
151	54		711.25		
152		111	715.25	714.00	715.25
153	55		717.25		
154		112	721.25	720.00	721.25
155	56		723.25		

156		113	727.25	726.00	727.25
157	57		729.25		
158		114	733.25	732.00	733.25
159	58		735.25		
160		115	739.25	738.00	739.25
161	59		741.25		
162		116	745.25	744.00	745.25
163	60		747.25		
164		117	751.25	750.00	751.25
165	61		753.25		
166		118	757.25	756.00	757.25
167	62		759.25		
168		119	763.25	762.00	763.25
169	63		765.25		
170		120	769.25	768.00	769.25
171	64		771.25		
172		121	775.25	774.00	775.25
173	65		777.25		
174		122	781.25	780.00	781.25
175	66		783.25		
176		123	787.25	786.00	787.25
177	67		789.25		
178		124	793.25	792.00	793.25
179	68		795.25		
180		125	799.25	798.00	799.25
181	69		801.25		

4.4 User interface

4.4.1 Hardware function (Rear)

AV IN 1&2 : Audio and video input connector (2 sets, respectively)

(a) AUDIO : R input (Right channel of stereo sound ; red color of RCA JACK)

L input (Left channel of stereo sound ; white color of RCA JACK)

(b) VIDEO : Composite video signal input (yellow color of RCA JACK)

(c) S-VIDEO:Y/C Separation signal input (4 pin Mini-DIN)

HDTV input : Component video signal input connector (2 set)

(a) Audio : R input (Right channel of stereo sound ; red color of RCA JACK)

L input (Left channel of stereo sound ; white color of RCA JACK)

(b) Component video input:

Y : luminance signal input.

Pb/Cb : digitalizing of B-Y chrominance signal input.

Pr/Cr : digitalizing of R-Y chrominance signal input.

OUT: Audio and video output connector (1 set)

(a)AUDIO : R output (Right channel of stereo sound ; red color of RCA JACK)

L output (Left channel of stereo sound ; white color of RCA JACK)

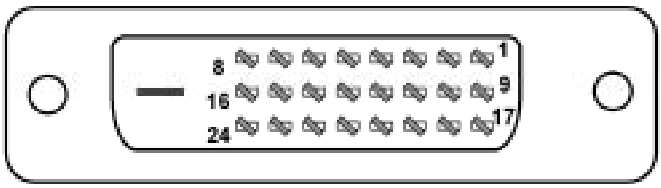
DATA INPUT: Digital or analog video signal input connector

(a)DVI :

Audio : R input (Right channel of stereo sound ; red color of RCA JACK)

L input (Left channel of stereo sound ; white color of RCA JACK)

Digital data input connector (VESA DFP)



Signal Pin Assignments : Digital only Connector

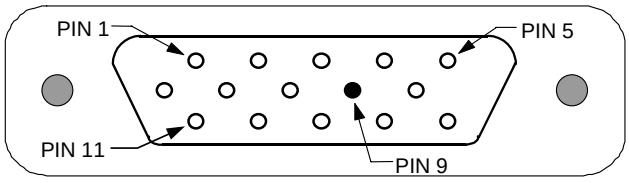
Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data 2-	9	T.M.D.S. Data 1-	17	T.M.D.S. Data 0-
2	T.M.D.S. Data 2+	10	T.M.D.S. Data 1+	18	T.M.D.S. Data 0+
3	T.M.D.S. Data 2/4 Shield	11	T.M.D.S. Data 1/3 Shield	19	T.M.D.S. Data 0/5 Shield
4	T.M.D.S. Data 4-	12	T.M.D.S. Data 3-	20	T.M.D.S. Data 5-
5	T.M.D.S. Data 4+	13	T.M.D.S. Data 3+	21	T.M.D.S. Data 5+
6	DDC Clock	14	+5V Power	22	T.M.D.S. Clock Shield
7	DDC Data	15	Ground (for +5V)	23	T.M.D.S. Clock +
8	No Connect	16	Hot Plug Detect	24	T.M.D.S. Clock -

Signal Pin Assignment : Combined Connector (Analog and Digital)

Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data 2-	9	T.M.D.S. Data 1-	17	T.M.D.S. Data 0-
2	T.M.D.S. Data 2+	10	T.M.D.S. Data 1+	18	T.M.D.S. Data 0+
3	T.M.D.S. Data 2/4 Shield	11	T.M.D.S. Data 1/3 Shield	19	T.M.D.S. Data 0/5 Shield
4	T.M.D.S. Data 4-	12	T.M.D.S. Data 3-	20	T.M.D.S. Data 5-
5	T.M.D.S. Data 4+	13	T.M.D.S. Data 3+	21	T.M.D.S. Data 5+
6	DDC Clock	14	+5V Power	22	T.M.D.S. Clock Shield
7	DDC Data	15	Ground (return for +5V, Hsync, and Vsync)	23	T.M.D.S. Clock +
8	No Connect	16	Hot Plug Detect	24	T.M.D.S. Clock -
C1	Analog Red	C2	Analog Green	C3	Analog Blue
C4	Analog Horizontal Sync	C5	Analog Ground (analog R,G,B return)		

(b)VGA:15 pin D-sub analog video signal input connector

15 pin D-type connector Pin Assignments:



Pin	Standard VGA	DDC1 Host	DDC2B Host	DDC2B+ or DDC2AB Host	DDC1/2 Display
1	Red Video	Red Video	Red Video	Red Video	Red Video
2	Green Video	Green Video	Green Video	Green Video	Green Video
3	Blue Video	Blue Video	Blue Video	Blue Video	Blue Video
4	Monitor ID bit 2	Monitor ID bit 2	Monitor ID bit 2	Monitor ID bit 2	Monitor ID bit 2
5	Test (ground)	Return	Return	Return	Return
6	Red video return	Red video return	Red video return	Red video return	Red video return
7	Green video return	Green video return	Green video return	Green video return	Green video return
8	Blue video return	Blue video return	Blue video return	Blue video return	Blue video return
9	No connection (mechanical key)	+5V supply (mandatory supply)	+5V supply (mandatory supply)	+5V supply (mandatory supply)	+5V load (optional use)
10	Sync. Return	Sync. Return	Sync. Return	Sync. Return	Optional
11	Monitor ID bit 0	Monitor ID bit 0	Monitor ID bit 0	Monitor ID bit 0	Monitor ID bit 0

12	**Monitor ID bit 1**	**Data from display**	**Bi-directional data (SDA)**	**Bi-directional data (SDA)**	**Bi-directional data (SDA)**
13	**Horizontal sync.**	**Horizontal sync.**	**Horizontal sync.**	**Horizontal sync.**	**Horizontal sync.**
14	**Vertical sync.**	**Vertical sync.**	**Vertical sync.**	**Vertical sync.**	**Vertical sync.**
15	**Monitor ID bit 3**	**Open**	**Data clock (SCL)**	**Data clock (SCL)**	**Data clock (SCL)**

DDC Level requirement.

DDC Level	**Required Current Capability**
DDC1	**Minimum of 50mA, maximum of 1 A**
DDC2B	**Minimum of 50mA, maximum of 1 A**
DDC2B+	**Minimum of 50mA, maximum of 1 A**
DDC2ab	**Minimum of 300mA, maximum of 1 A**

4.4.1b SIDE :

AV I/O JACK : Audio and video input/output connector(1 set)

(a).AUDIO : R input (Right channel of stereo sound ; red color of RCA JACK)

L input (Left channel of stereo sound ; white color of RCA JACK)

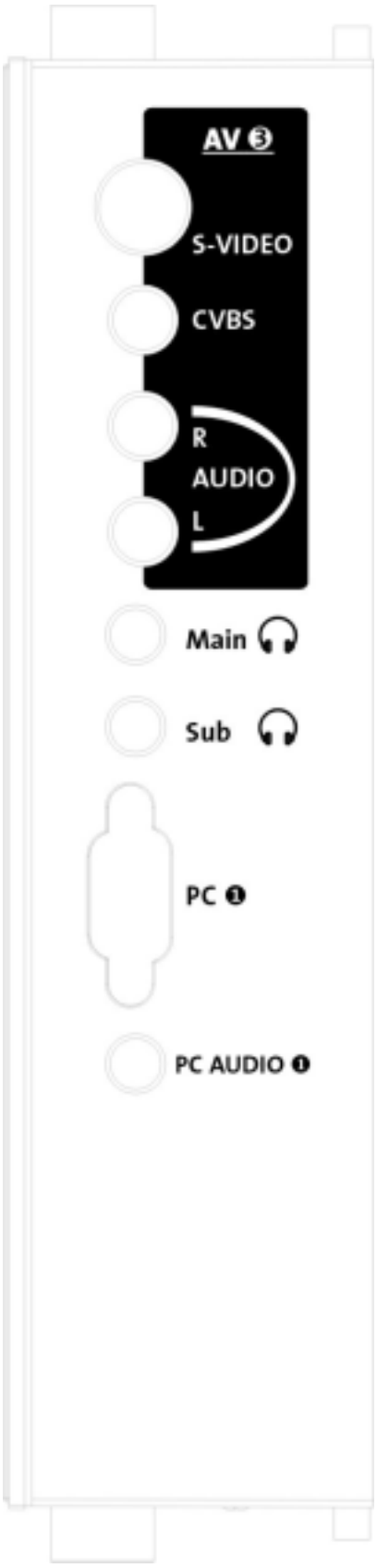
Phone output x2 (Sound output connector to Earphone ; green color)

(b)VIDEO : Composite video signal input (yellow color of RCA JACK)

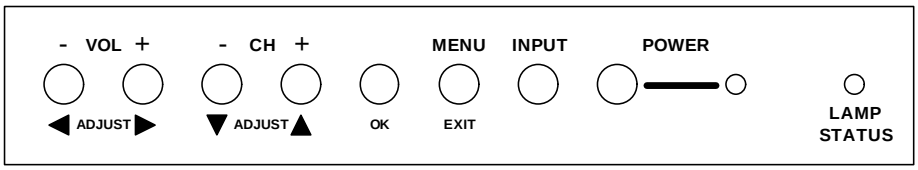
(c)S-VIDEO : Y/C separation signal input (4 pin Mini-DIN)

VGA: 15 pin D-sub analog video signal input connector

Audio: 3.5mm stereo mini jack x 1, green color



4.4.2 Control keypad



Name	Usage	ID
Power LED	Green: Power On. Off : Power Off	1
Up	OSD Menu Item Choice or Adjust (┼)	2
Down	OSD Menu Item Choice or Adjust (—)	3
Volume Up	Volume Adjust (┼)	4
Volume Down	Volume Adjust (—)	5
Menu	OSD Menu Open/Close or Exit Edit mode	6
Enter	OSD Menu Item Enter or Entry Edit mode	7

4.4.3 Remote control keypads

Button on the C48	HEX Data Code
Power	3
1	45
2	10
3	11
4	0B
5	8
6	9
7	47
8	4B
9	4F
0	4
MUTE	7
100	5
Vol +	0C
Vol -	0D
CH +	51
CH -	49
INPUT	0
LAST	6
WIDE	13
Up Arrow	1C
Down Arrow	19
Left Arrow	1B
Right Arrow	1E
OK	41
GUIDE	42
INFO	0A
MENU	1F
EXIT	18
Play	61
Rewind	63
Forward	64
Record	65
Stop	60
Pause	62

5.0 Mechanical

5.1 Outline Dimensions

Specification	Units	Maximum	Minimum	Typical	Notes
Outside dimensions	mm				
Width	"			1381	
Height	"			1113	
Length	"			480	
Weight	Lb./kg			TBD	

5.2 Environmental

Specification	Units	Minimum	Maximum	Typical	Notes
Operation Temperature (Design)	℃	0	40		All performance specifications are maintained within this temperature range
Operation Temp. (QC/QE)	℃	3	38		
Operation Temp. (Customer)	℃	5	35		"
Non operating	℃	-10	60		
Vibration (Not packaged)					1) Sinusoidal Vibration per IEC 68-2-6. 2) Random Vibration per IEC 68-2-34
Shock (Not packaged)					50G ½ Sine, 11ms, 3 shocks per face, 18 total.
Altitude	Feet	0	10,000		
Humidity	% R.H.	20	90		≤40°C Non-condensing

5.3 Packaging/Shipping

Shipping (Packaged)					Test per ISTA (International Safe Transit Association) Procedure 1A, "Pre-

					Shipment Test Procedures" and Procedure 2A "Overseas Pre-Shipment Test Procedures".

5.4 Construction Materials

Case	WOOD, HPS or PS
Optics Module Base	AL Alloy
Optics Module Cover	PC + GF 20%

5.5 Clean Air Filters

Note: Clean air filters are replaceable without opening main projector cover.

5.6 Cooling system:

DVR5610 is a projection product which using UHP(ultra high pressure) lamp as light source, most of heat is generated from the UHP lamp, this feature leads to following thermal consideration.

In DVR5610, forced convection is designed as the main cooling mechanism, fans are employeed as active cooling devices to circulate flow. Regarding to flow path scheme, fresh air will be sucked into system naturally and then cool the power module, DMD, electronics board and then lamp, hot air behind lamp wake will be ventilated by an axial fan and be guideded by an air channel then exhaust to outside ambient. This thermal system will provide about 15 CFM to circulate heat and keep low temperature inside DVR5610. For the most important component,DMD, a high efficiency heat sink is designed to conduct heat from DMD and then exchange heat with air that provided by a blower. This cooling design is applied to prevent DMD damage from high temperature and make sure the lifetime of DMD.

5.7 Acoustic noise:

Acoustic noise measurements shall be conducted in accordance with ECMA 74 (5th edition).

The Equipment Under Test (EUT) is placed on a standard test table 0.5 m high, microphones centered on each face of the EUT at a distance of 1.0 m from the EUT, 1.0 m above the floor. The free-field microphone shall point at the EUT. The energy average A-weighted sound pressure level is reported. The EUT is placed on the floor for the sound power test.

The measurements shall be conducted in accordance with ECMA 74 with the addition for bystander positions and declared in accordance with ECMA 109. Verification of the declared emission values shall be in accordance with ECMA 109.

Maximum Levels

	Declared Sound Power Emission Level (L_{WAd}), bels	Average Bystander Position Sound Pressure Level (L_{pAm}), dBA
Steady State:		33

6.0 Safety

6.1 Interlocks

Interlocks	**Type**	**Description**
Lamp Module Cover	Micro switch	Turns off all power when cover is removed

6.2 Labels

Labels		
Lamp Removal Warning	Decal	Warns not to remove lamp when hot
Eye Damage Warning	Lens Cap Decal	Warns not to look into the projection lens when the lamp is on.
Product label		Includes model number and product serial number
Power Input label		Shows input voltage ranges and max current ratings.

II. On-Screen Display Function Control Description

1 Functional Requirements

Functionality	Use Mode Type	Range
Picture Adjust Menu (AV)		
Contrast	Slider Bar mode	0 ~ 100
Brightness	Slider Bar mode	0 ~ 100
Saturation	Slider Bar mode	0 ~ 100
Hue	Slider Bar mode	0 ~ 100
H Sharpness	Slider Bar mode	0 ~ 18
V Sharpness	Slider Bar mode	0 ~ 13
Main Format	Selector mode	Auto ~ Letter box
Picture Adjust Menu (PC)		
Contrast	Slider Bar mode	0 ~ 100
Brightness	Slider Bar mode	0 ~ 100
H Position	Slider Bar mode	0 ~ 100
V Position	Slider Bar mode	0 ~ 100
ADC clock	Selector mode	0 ~ 18
ADC phase	Selector mode	0 ~ 13
Color	Selector mode	STD ~ WARM
Auto Config	Selector mode	no ~ yes
Main Format	Selector mode	Auto ~ Letter box
Pip Setup Menu		
Pip mode	Selector mode	Off ~ scan
Aspect Ratio (Pip and POP2)	Selector mode	4:3 ~ 16 :9
Size (Pip and POP2)	Slider Bar mode	0 ~ 18
H Position (Pip and POP2)	Slider Bar mode	0 ~ 100
V Position (Pip and POP2)	Slider Bar mode	0 ~ 100

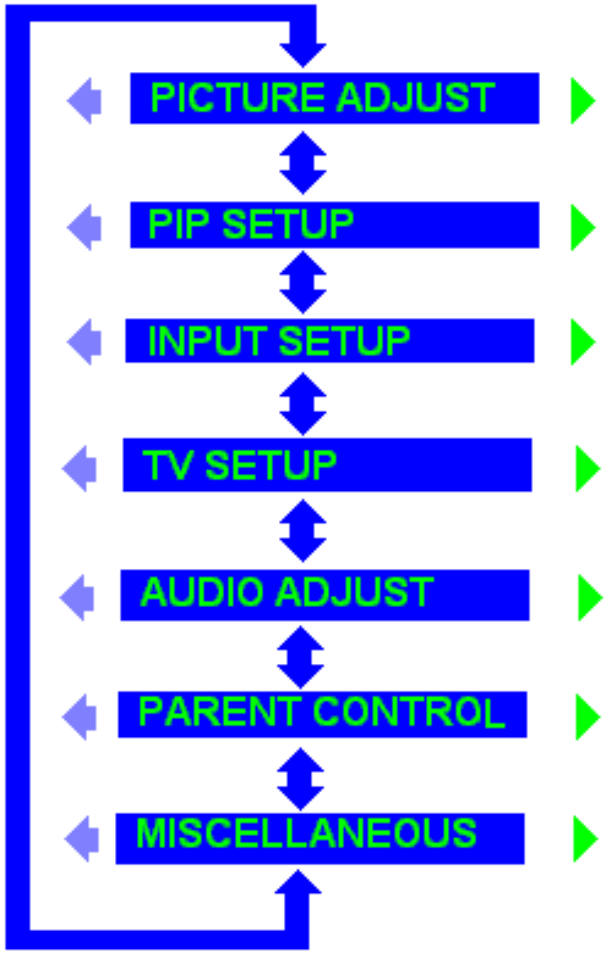
Functionality		Use Mode Type	Range
Pip Blending (Pip)		Slider Bar mode	0 ~ 16
Input Setup Menu			
Main Input		Selector mode	AV1 ~ PC2
Pip Input		Selector mode	AV1 ~ PC2
Output		Selector mode	By Main ~ PC2
TV Setup Menu			
Main Channel		Selector mode	0 ~ 68 (broad cast) 0 ~ 125 (CATV)
Pip Channel		Selector mode	0 ~ 68 (broad cast) 0 ~ 125 (CATV)
Source		Selector mode	broad cast ~ CATV
Sound		Selector mode	Stereo ~ SAP
Close Caption		Selector mode	off ~ TEXT4
Channel Search		Selector mode	
Audio Adjust Menu			
Volume		Slider Bar mode	0 ~ 100
Bass		Slider Bar mode	0 ~ 100
Treble		Slider Bar mode	0 ~ 100
Balance		Slider Bar mode	0 ~ 100
AGC		Selector mode	off ~ 540m Vrms
Output		Selector mode	Internal ~ External
Effect		Selector mode	off ~ Stereo
Mute		Selector mode	off ~ on
Parent Control Menu			
Password		Numeric mode	0000 ~ 9999
MPAA	G	Selector mode	Enable ~ Disable

Functionality		Use Mode Type	Range
Rating (Sub Menu)	PG	Selector mode	Enable ~ Disable
	PG –13	Selector mode	Enable ~ Disable
	R	Selector mode	Enable ~ Disable
	NC – 17	Selector mode	Enable ~ Disable
	X	Selector mode	Enable ~ Disable
TV Rating (Sub Menu)	TV – Y	Selector mode	Enable ~ Disable
	TV – Y7 (FV)	Selector mode	Enable ~ Disable
	TV – G	Selector mode	Enable ~ Disable
	TV – PG (VLSD)	Selector mode	Enable ~ Disable
	TV – 14 (VLSD)	Selector mode	Enable ~ Disable
	TV – MA (VLSD)	Selector mode	Enable ~ Disable
Unrated Allowed		Selector mode	ON ~ OFF
Change Password		Numeric mode	0000 ~ 9999
Confirm Password		Numeric mode	0000 ~ 9999
Miscellaneous Menu			
OSD H Position		Slider Bar mode	0 ~ 200
OSD V Position		Slider Bar mode	0 ~ 200
OSD Timeout		Slider Bar mode	0 ~ 120
Reset		Selector mode	yes ~ no
Sleep Timer		Selector mode	off ~ 120

2. OSD Flow chart

Menu Flow chart

：**UP** or **Down** Key Event (select item)
：**Enter** Key Event (enter sub menu)
：**Menu** Key Event (disable OSD)



Picture Adjust Menu (AV) Flow chart

: **UP** or **Down** Key Event(select item)

: **Enter** Key Event (enter edit mode)

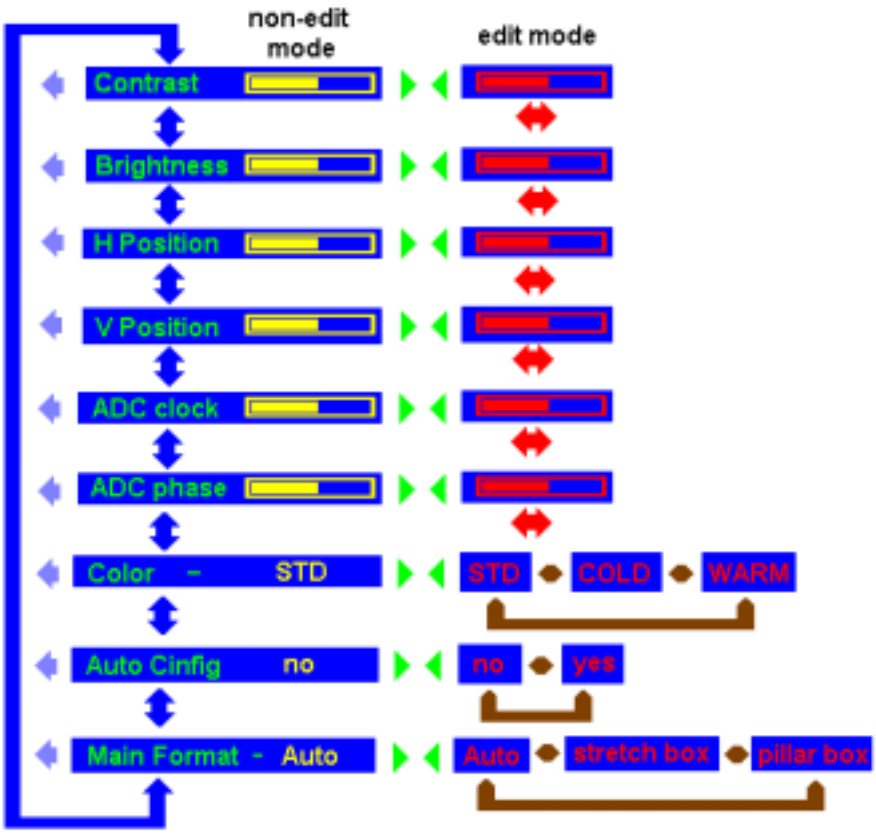
: **Menu** Key Event (exit edit mode)

: **UP** or **Down** Key Event (in edit mode ,adjust value)

: **UP** or **Down** Key Event (in edit mode ,select mode)

: **Menu** Key Event (return main menu)

Picture Adjust Menu (PC) Flow chart



：**UP** or **Down** Key Event(select item)

：**Enter** Key Event (enter edit mode)

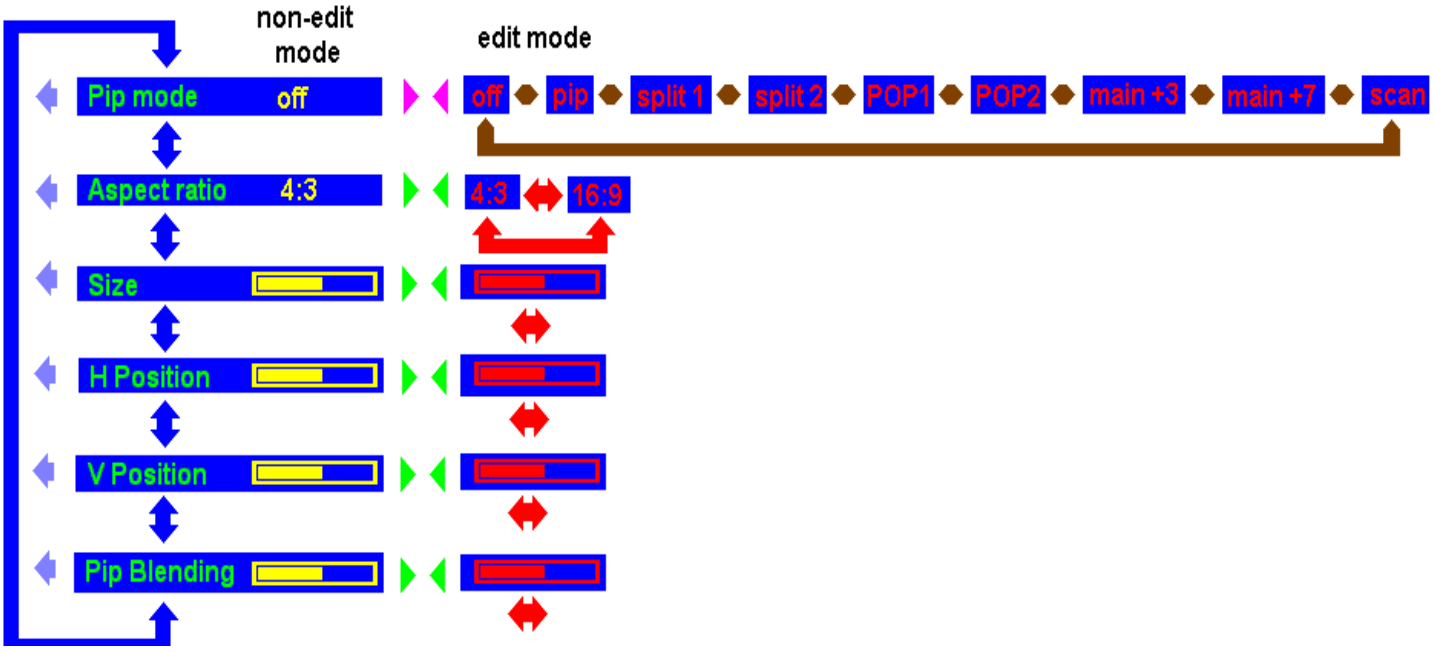
：**Menu** Key Event (exit edit mode)

：**UP** or **Down** Key Event (in edit mode ,adjust value)

：**UP** or **Down** Key Event (in edit mode ,select mode)

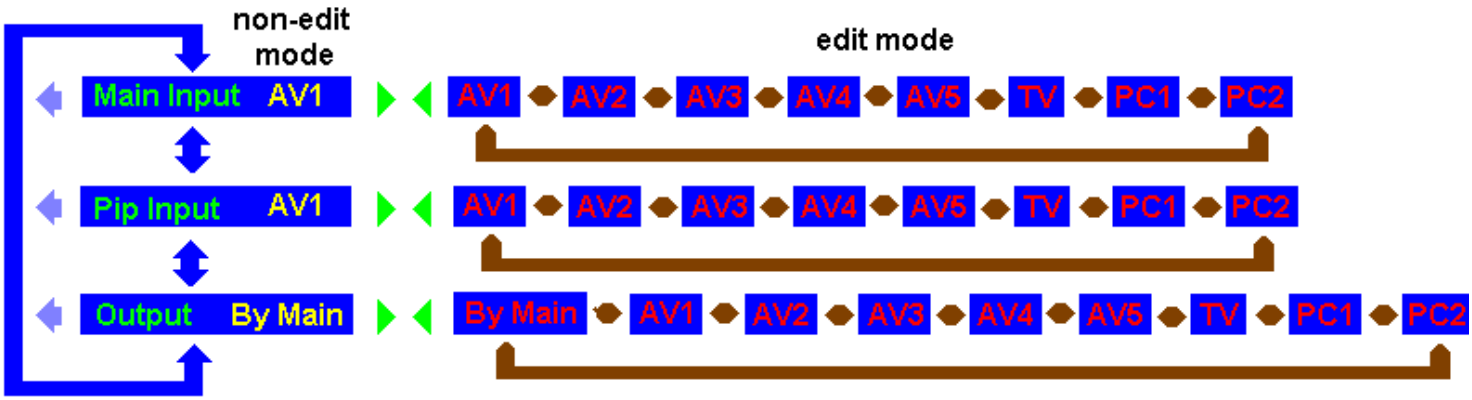
：**Menu** Key Event (return main menu)

Pip Setup Menu Flow chart



	: **UP** or **Down** Key Event (select item ,only in pip mode and POP2 mode)
	: **Enter** Key Event (enter edit mode ,only in pip mode and POP2 mode)
	: **Menu** Key Event (exit edit mode ,only in pip mode and POP2 mode)
	: **UP** or **Down** Key Event (in edit mode ,adjust value ,only in pip mode and POP2 mode)
	: **Enter** Key Event (enter edit mode)
	: **Menu** Key Event (exit edit mode)
	: **UP** or **Down** Key Event (in Edit mode ,adjust value)
	: **Menu** Key Event (return main menu)

Input Setup Menu Flow chart


non-edit mode
edit mode
Main Input AV1
Pip Input AV1
Output By Main
AV1 AV2 AV3 AV4 AV5 TV PC1 PC2
AV1 AV2 AV3 AV4 AV5 TV PC1 PC2
By Main AV1 AV2 AV3 AV4 AV5 TV PC1 PC2

：**UP** or **Down** Key Event(select item)

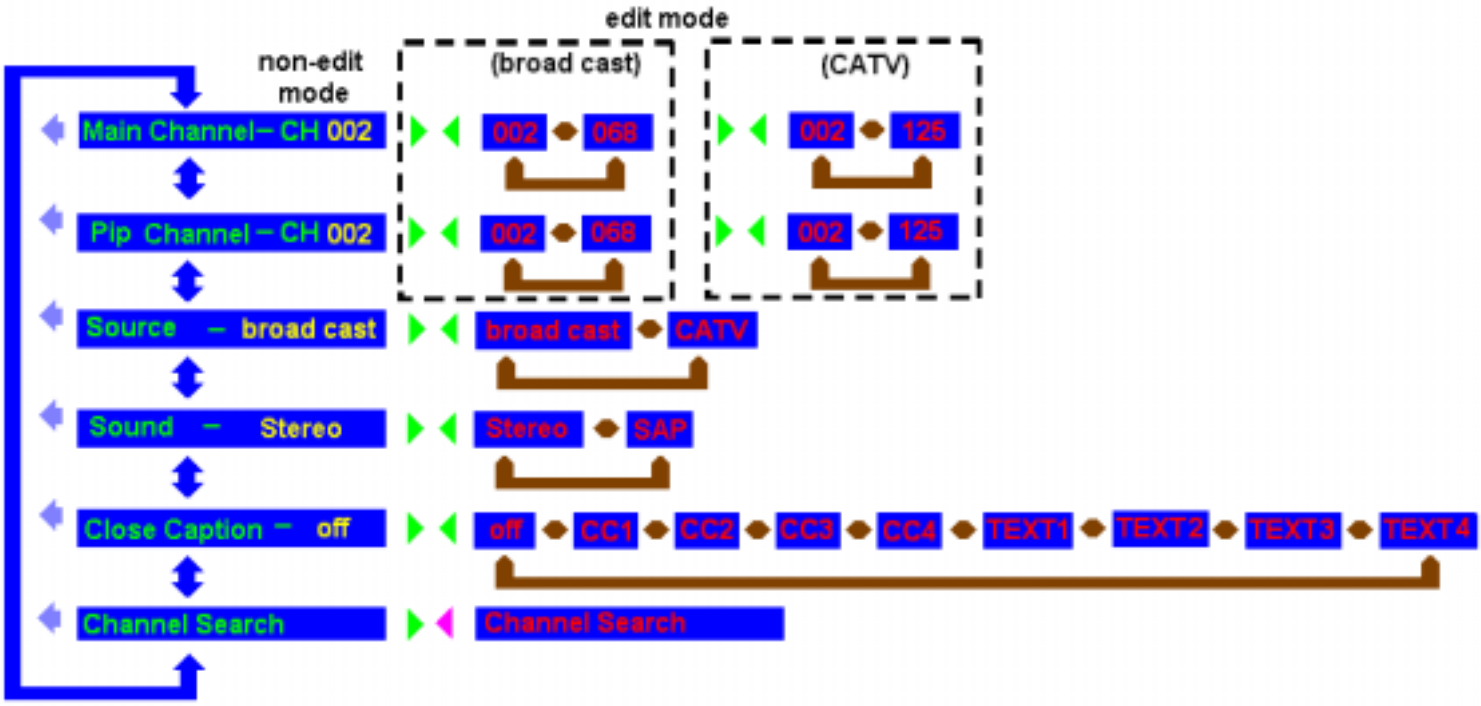
：**Enter** Key Event (enter edit mode)

：**Menu** Key Event (exit edit mode)

：**UP** or **Down** Key Event (in edit mode ,adjust value)

：**Menu** Key Event (return main menu)

TV Setup Menu Flow chart



: **UP** or **Down** Key Event(select item)

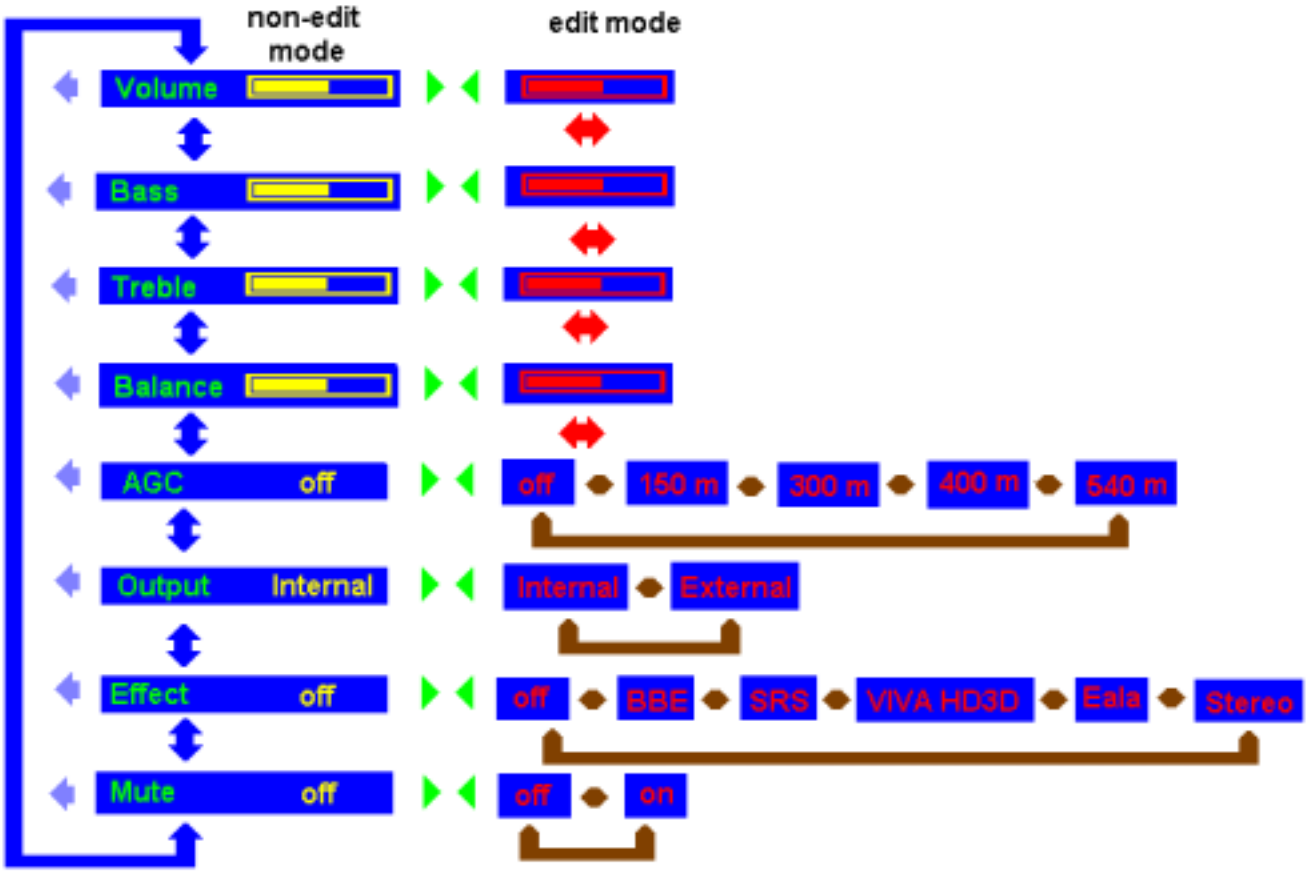
: **Enter** Key Event (enter edit mode)

: **Menu** Key Event (exit edit mode)

: **UP** or **Down** Key Event (in Edit mode ,adjust value)

: **Menu** Key Event (return main menu)

Audio Adjust Menu Flow chart



：**UP** or **Down** Key Event(select item)

：**Enter** Key Event (enter edit mode)

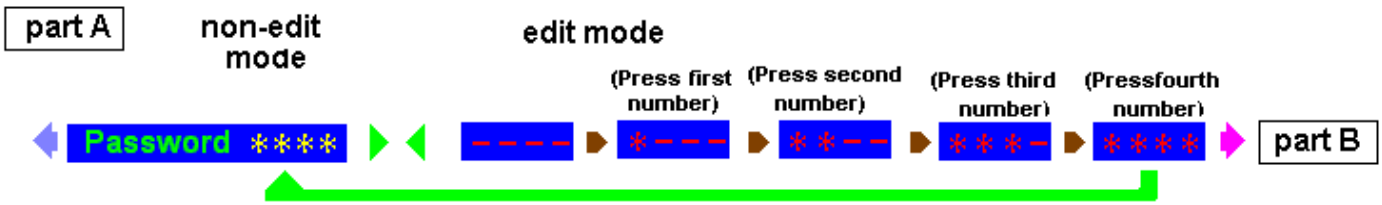
：**Menu** Key Event (exit edit mode)

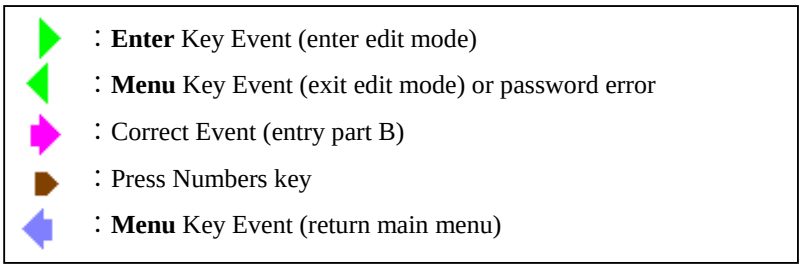
：**UP** or **Down** Key Event (in edit mode ,adjust value)

：**UP** or **Down** Key Event (in edit mode ,select mode)

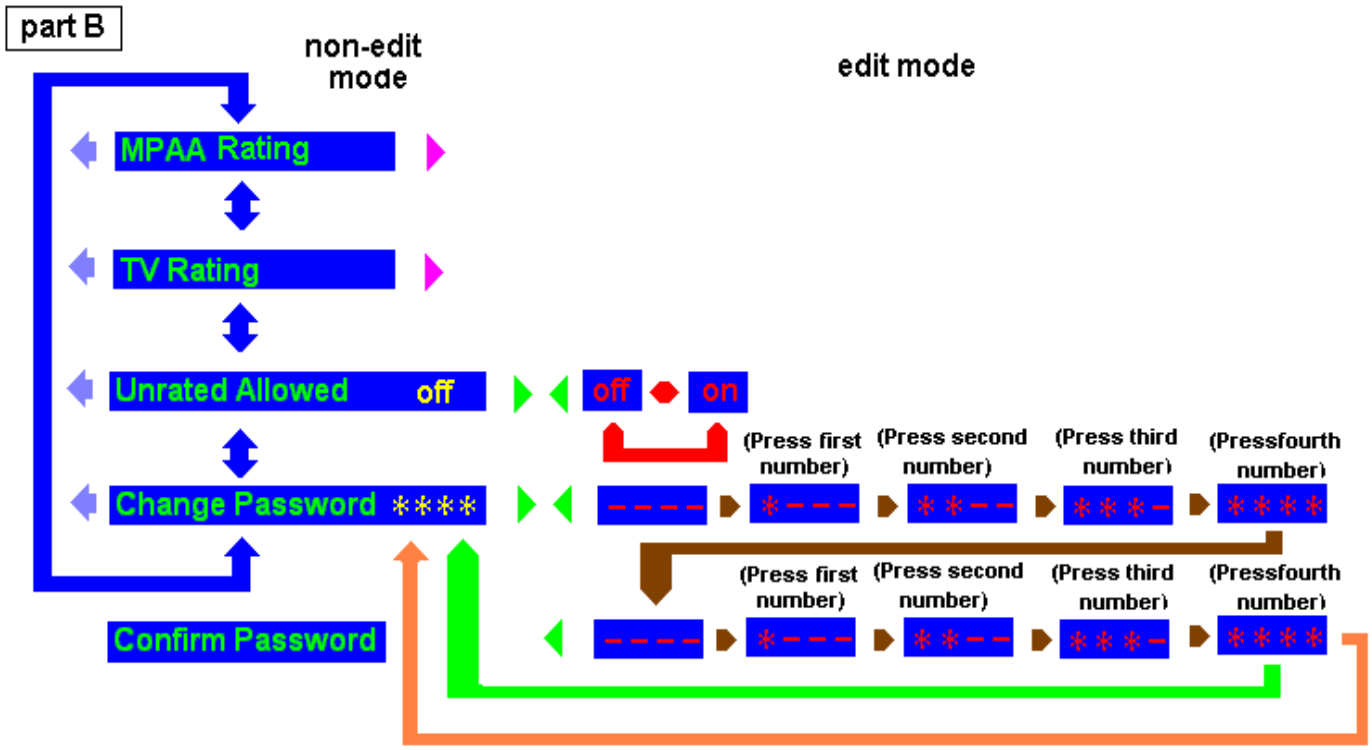
：**Menu** Key Event (return main menu)

Parent Control Menu Flow chart **— Part A:**




：**Enter** Key Event (enter edit mode)
：**Menu** Key Event (exit edit mode) or password error
：Correct Event (entry part B)
：Press Numbers key
：**Menu** Key Event (return main menu)

Part B:



：**UP** or **Down** Key Event(select item , besides **Confirm password** item)

：**Enter** Key Event (enter edit mode)

：**Menu** Key Event (exit edit mode , or confirm password error in **Confirm password** item and return to **Change Password** item)

：**UP** or **Down** Key Event (in edit mode ,adjust value in **Unrated Allowed** item)

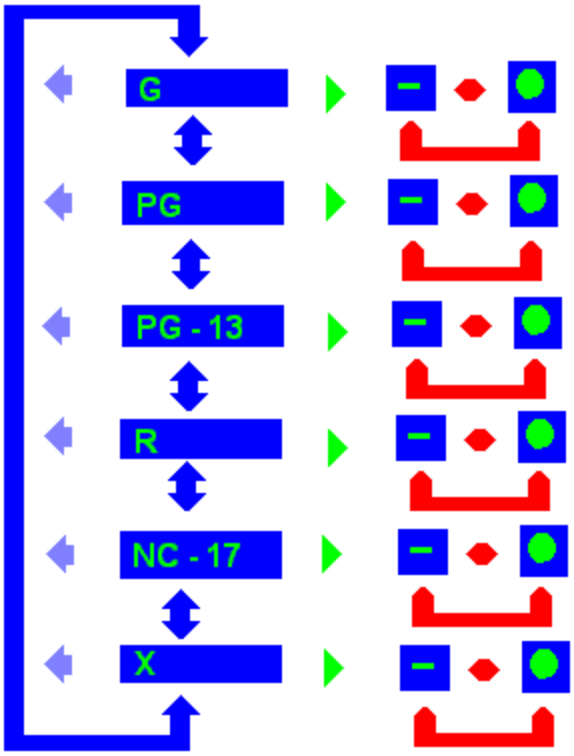
：Press Numbers Key

：**Enter** Key Event (entry sub menu)

：Confirm Password Correct and Return to **Change Password** item

：**Menu** Key Event (return main menu)

MPAA Rating Menu(sub menu**)** Flow chart



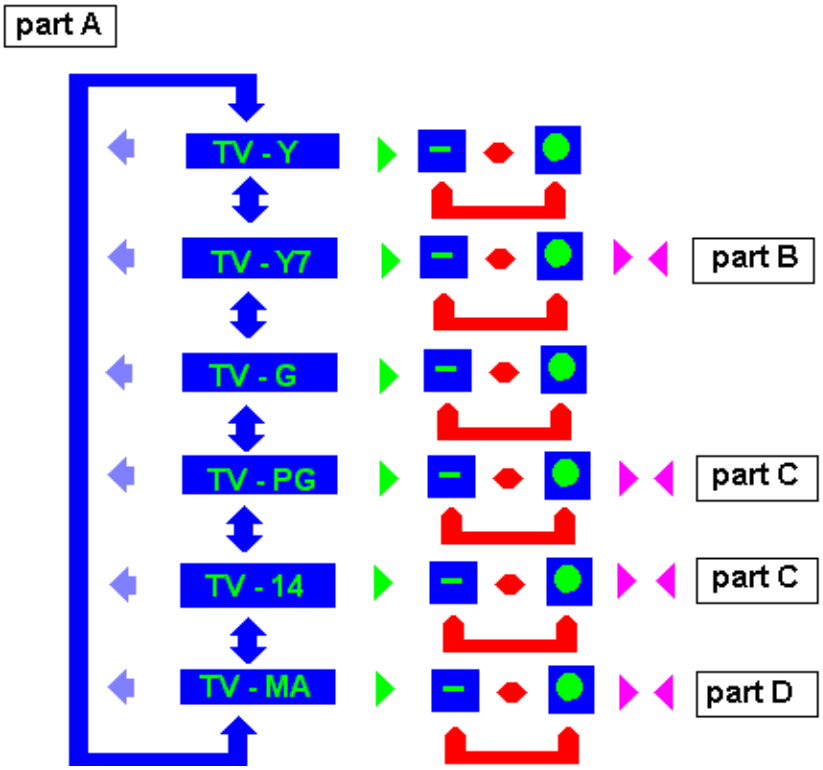
UP or **Down** Key Event(select item)

Enter Key Event (change item sign)

Sign Change Event (enable or disable)

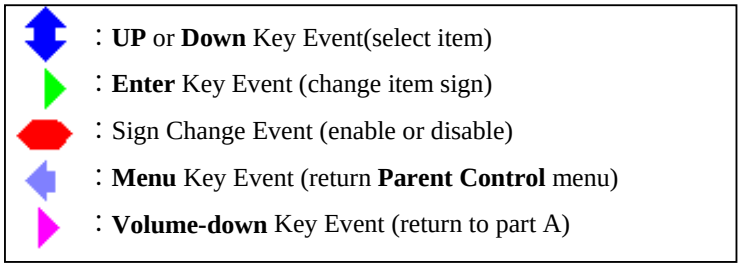
Menu Key Event (return **Parent Control** menu)

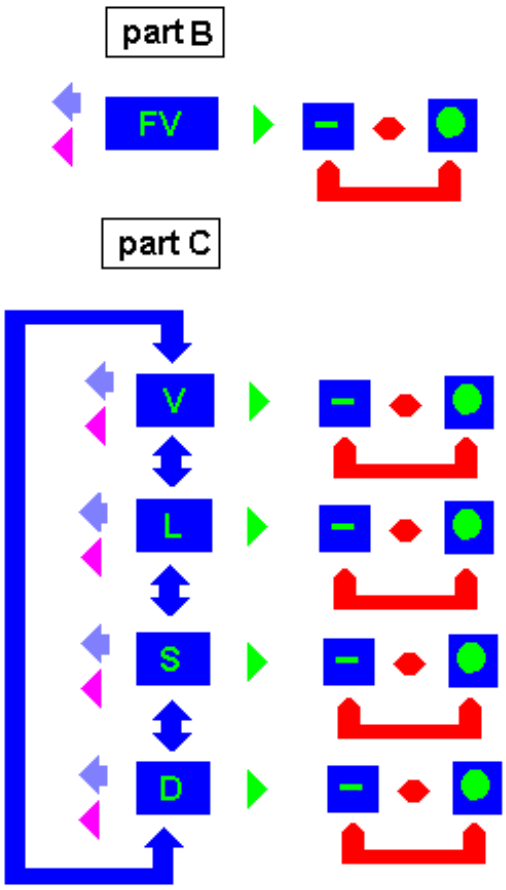
TV Rating Menu Flow chart **— Part A:**

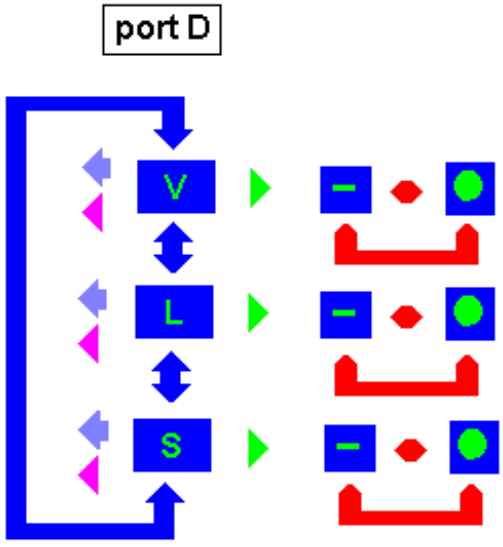


	: **UP** or **Down** Key Event(select item)
	: **Enter** Key Event (change item sign)
	: Sign Change Event (enable or disable)
	: **Menu** Key Event (return **Parent Control** menu)
	: **Volume-up** Key Event (entry port B ,)
	: **Volume-down** Key Event (return from port B)

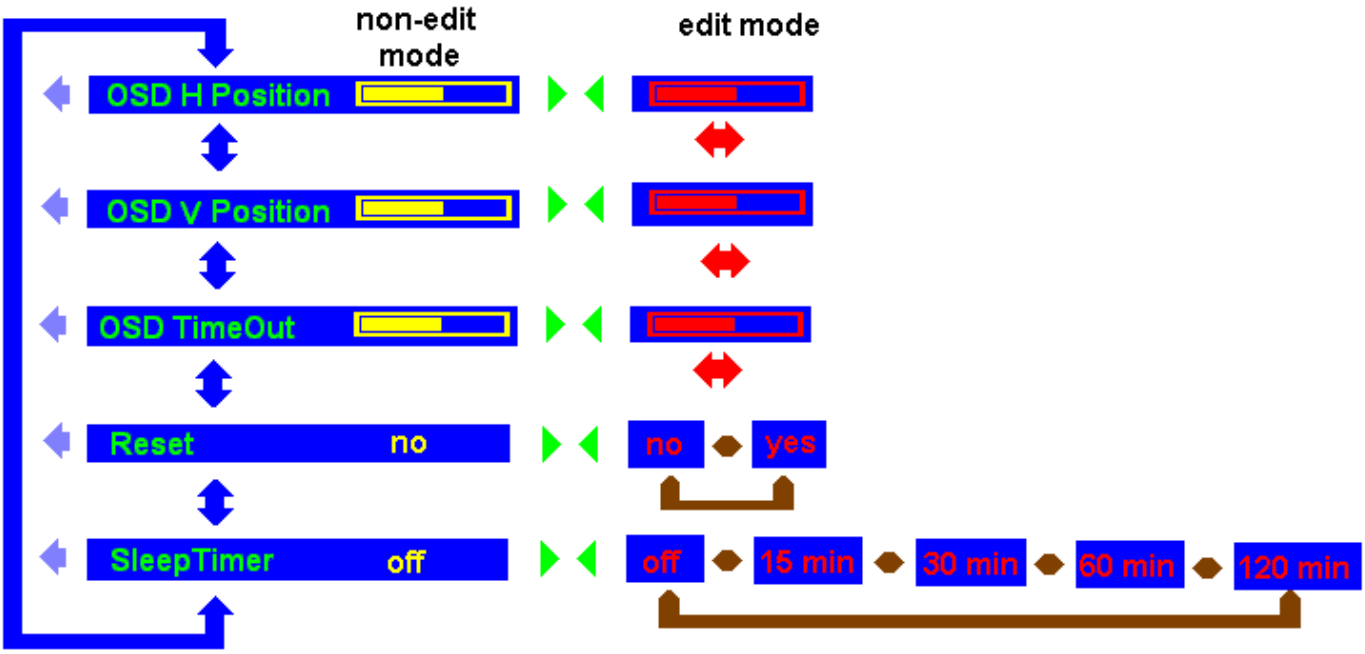
Part B 、 Part C、 Part D:


：UP or Down Key Event(select item)
：Enter Key Event (change item sign)
：Sign Change Event (enable or disable)
：Menu Key Event (return Parent Control menu)
：Volume-down Key Event (return to part A)





Miscellaneous Menu(sub menu**)** Flow chart



: **UP** or **Down** Key Event(select item)

: **Enter** Key Event (enter edit mode)

: **Menu** Key Event (exit edit mode)

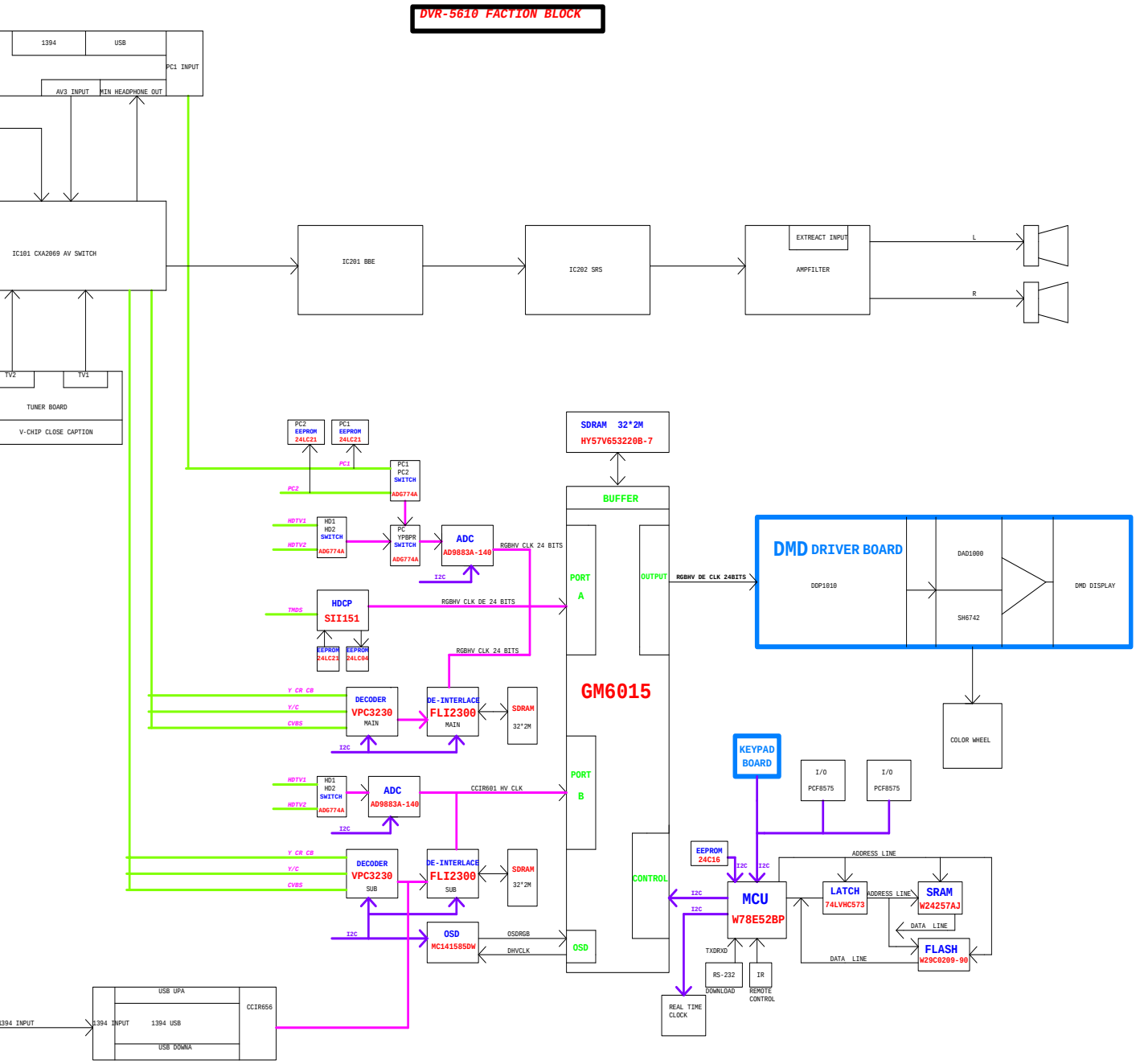
: **UP** or **Down** Key Event (in edit mode ,adjust value)

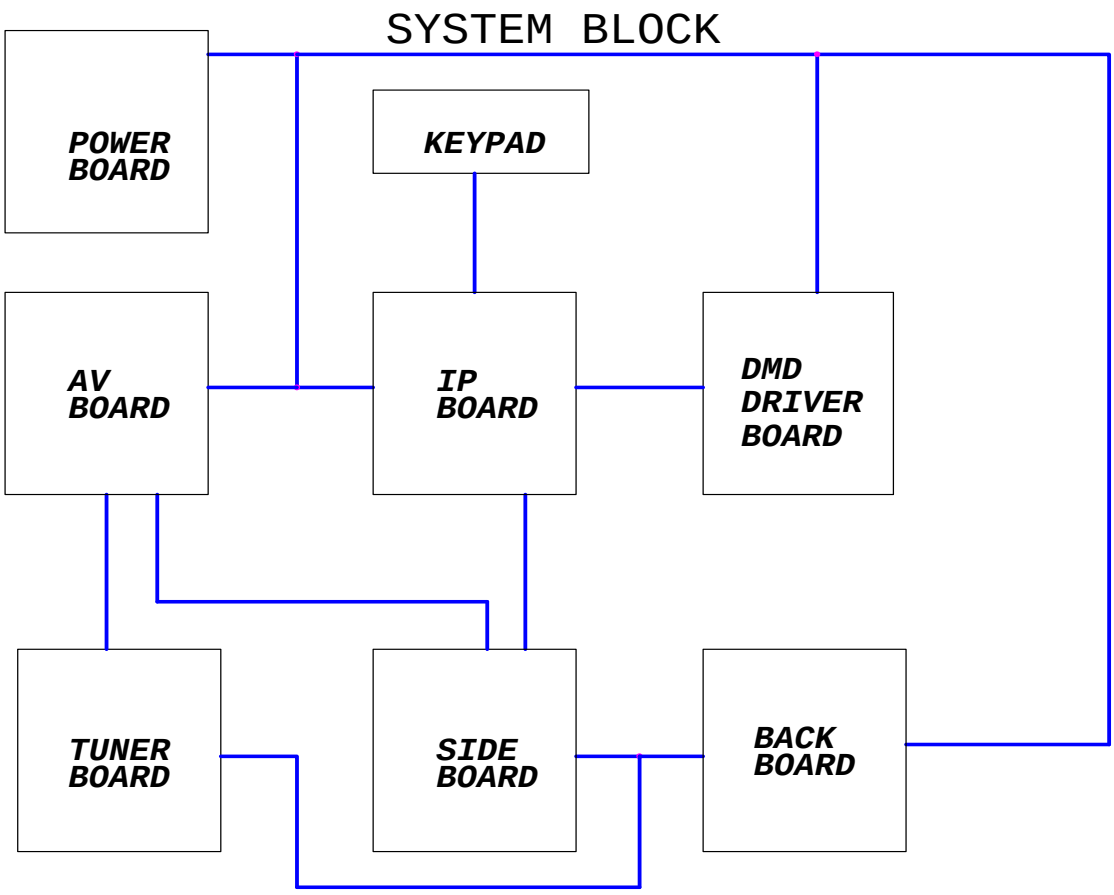
: **UP** or **Down** Key Event (in edit mode ,select mode)

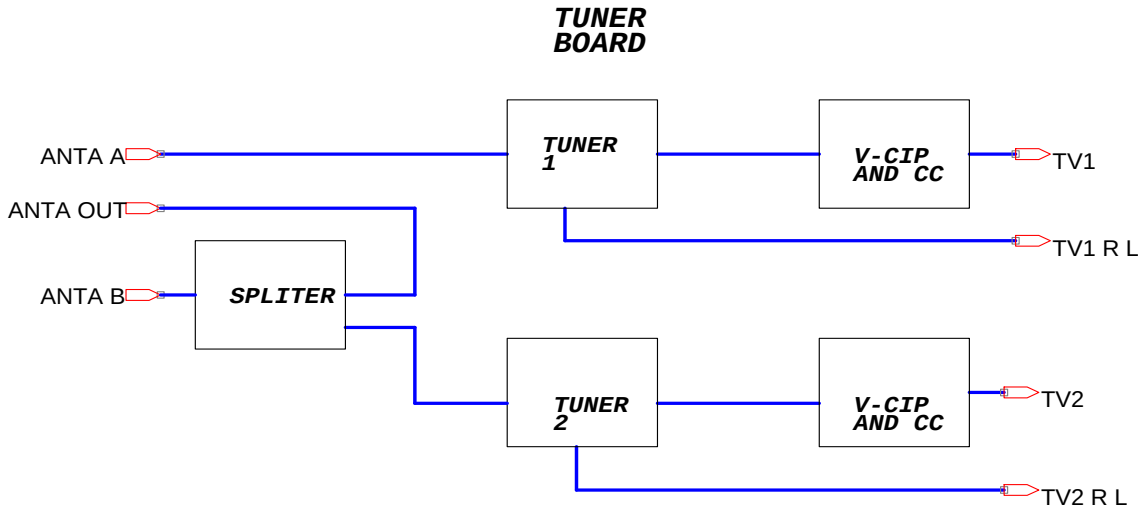
: **Menu** Key Event (return main menu)

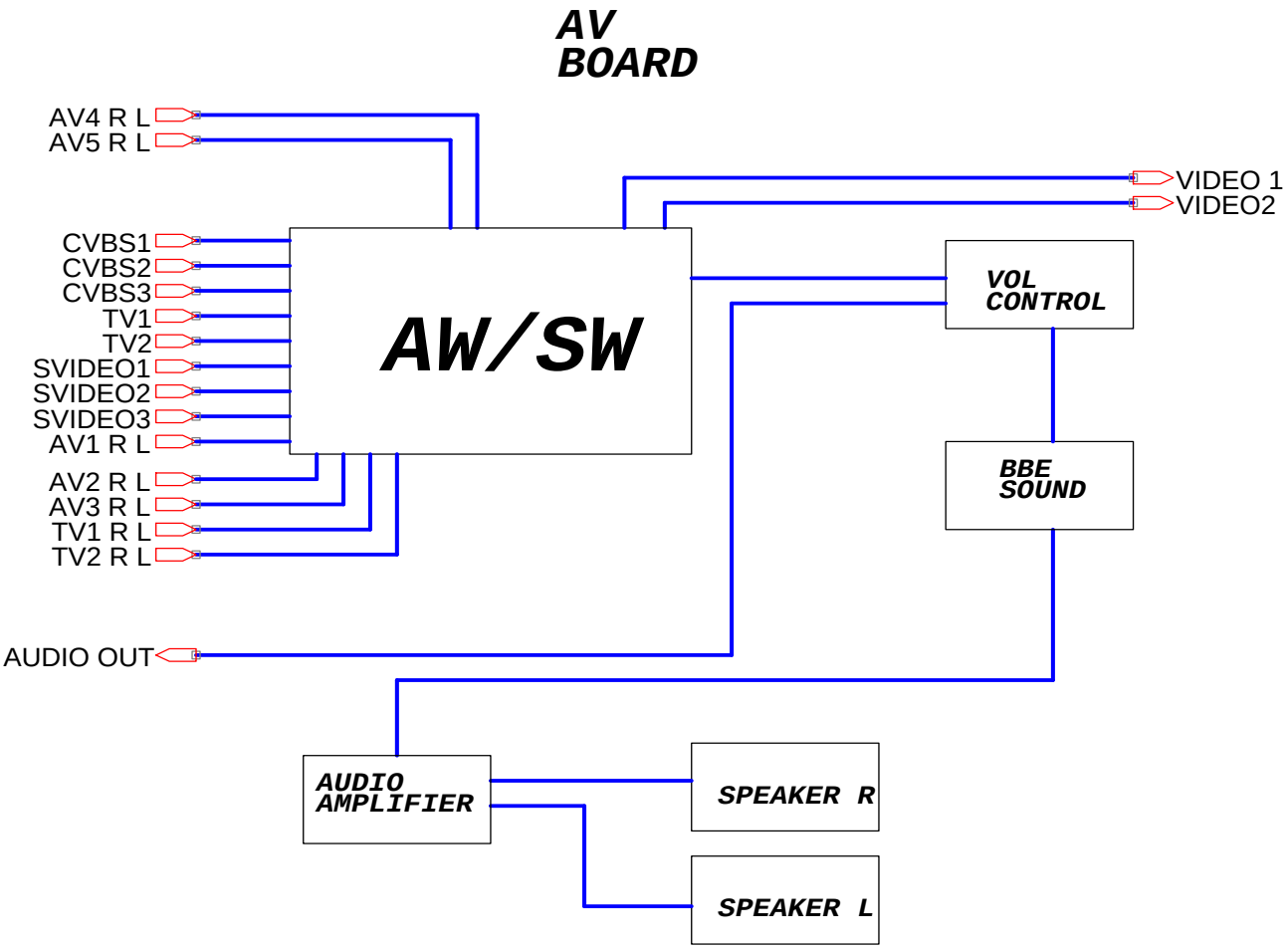
III. Circuit Description

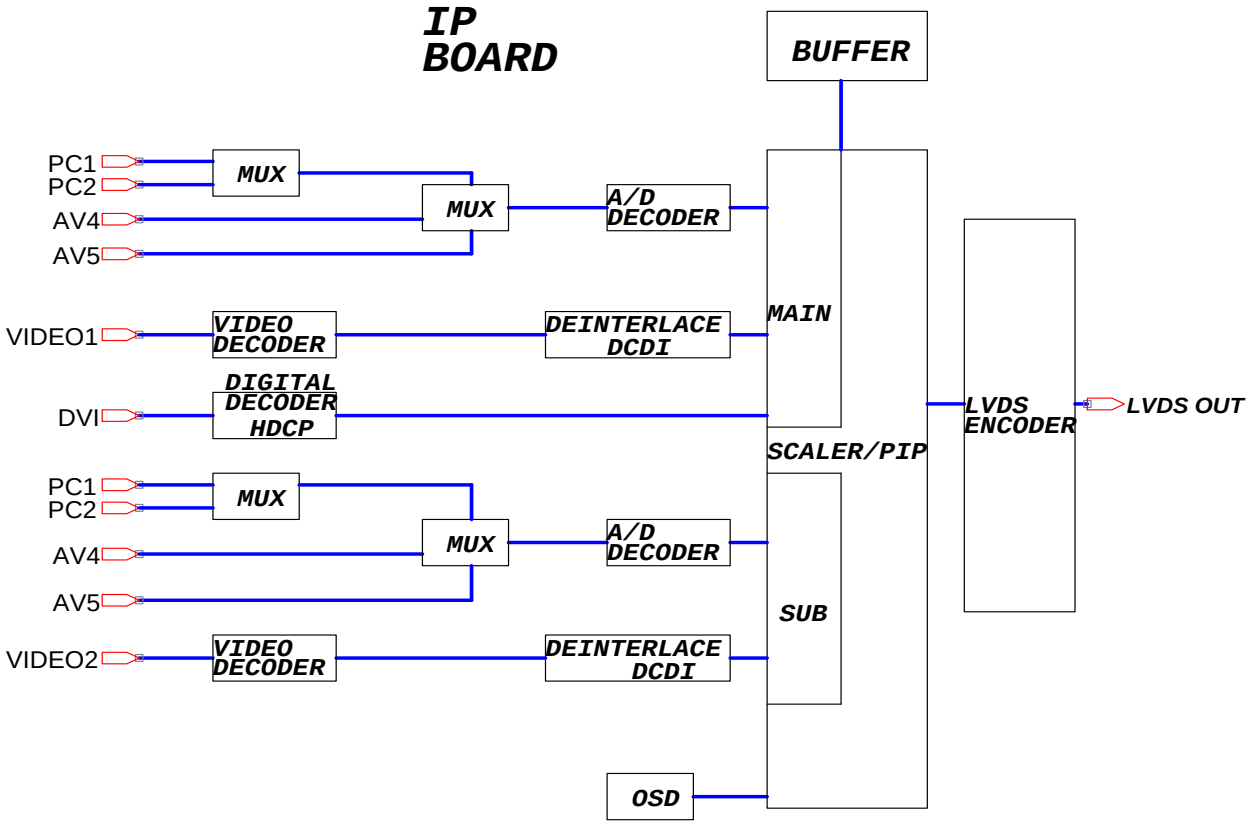
Circuit Description

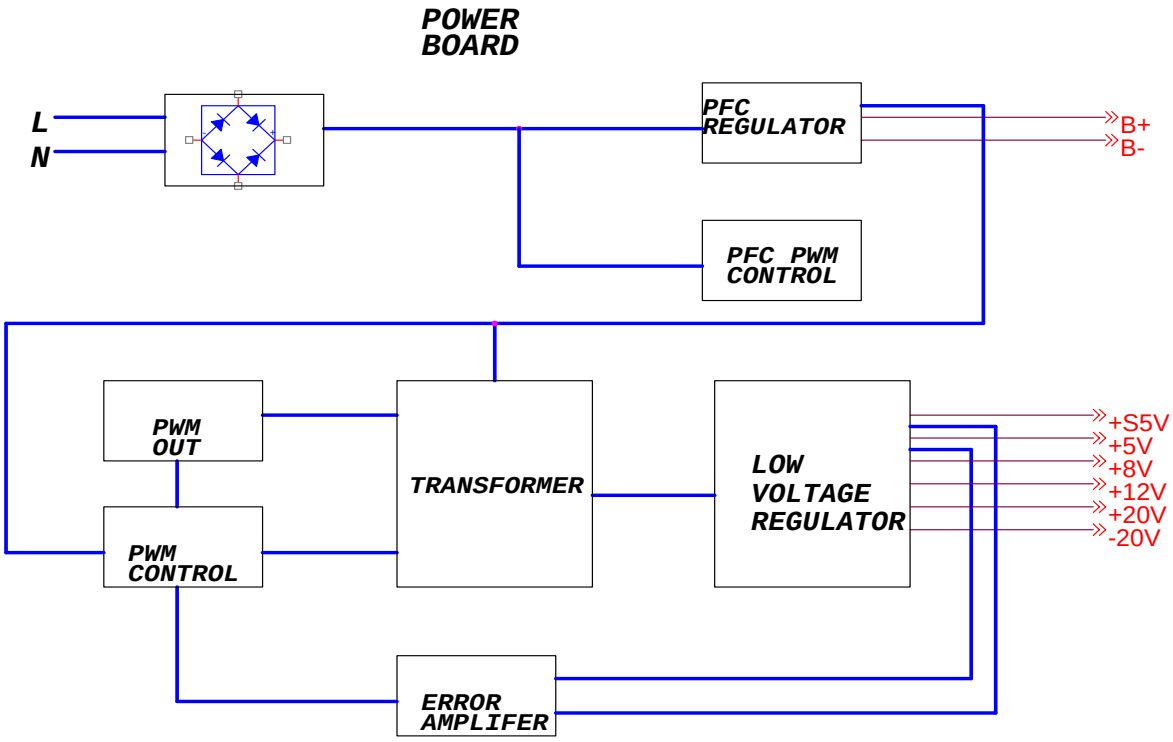


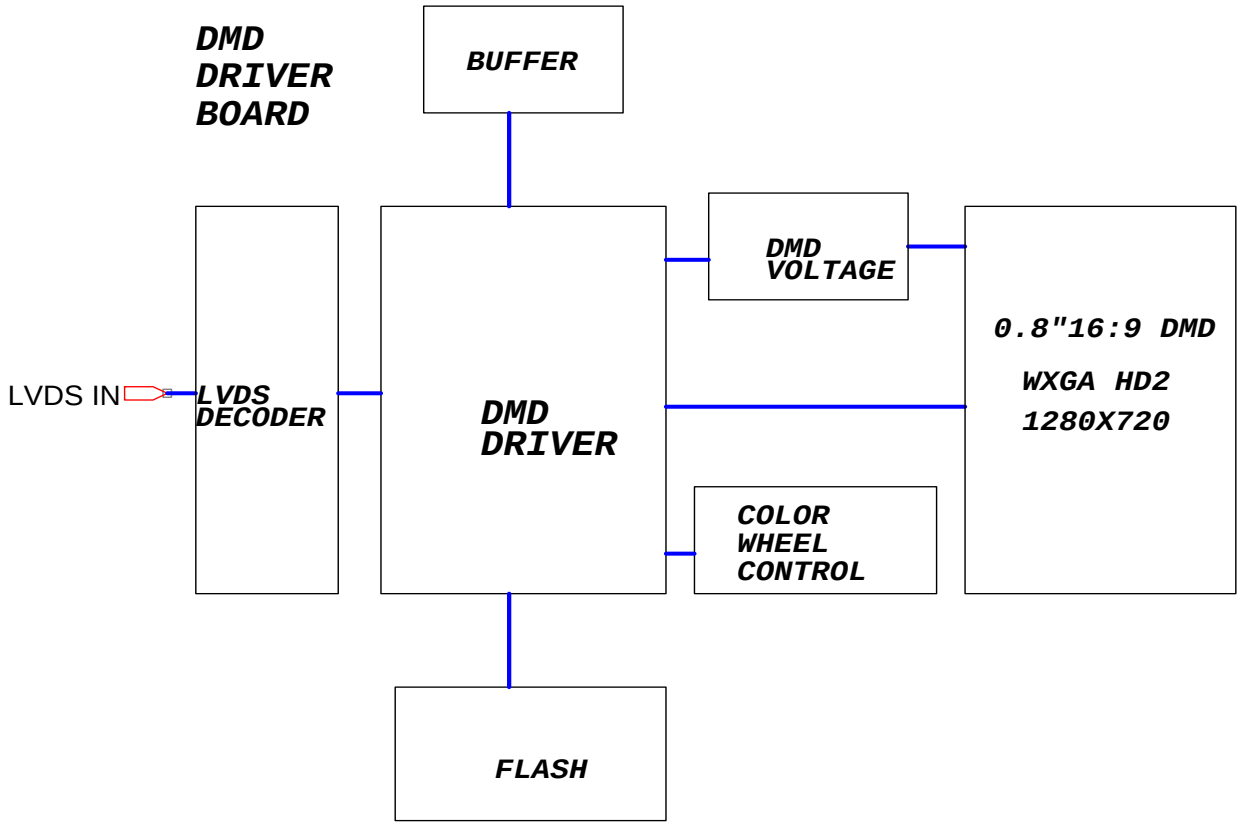

SYSTEM BLOCK
POWER BOARD
KEYPAD
AV BOARD
IP BOARD
DMD DRIVER BOARD
TUNER BOARD
SIDE BOARD
BACK BOARD


TUNER
BOARD
ANTA A
ANTA OUT
ANTA B
SPLITER
TUNER
1
TUNER
2
V-CIP
AND CC
V-CIP
AND CC
TV1
TV1 R L
TV2
TV2 R L


AV
BOARD
AV4 R L
AV5 R L
VIDEO 1
VIDEO2
CVBS1
CVBS2
CVBS3
TV1
TV2
SVIDEO1
SVIDEO2
SVIDEO3
AV1 R L
AW/SW
VOL
CONTROL
BBE
SOUND
AV2 R L
AV3 R L
TV1 R L
TV2 R L
AUDIO OUT
AUDIO
AMPLIFIER
SPEAKER R
SPEAKER L

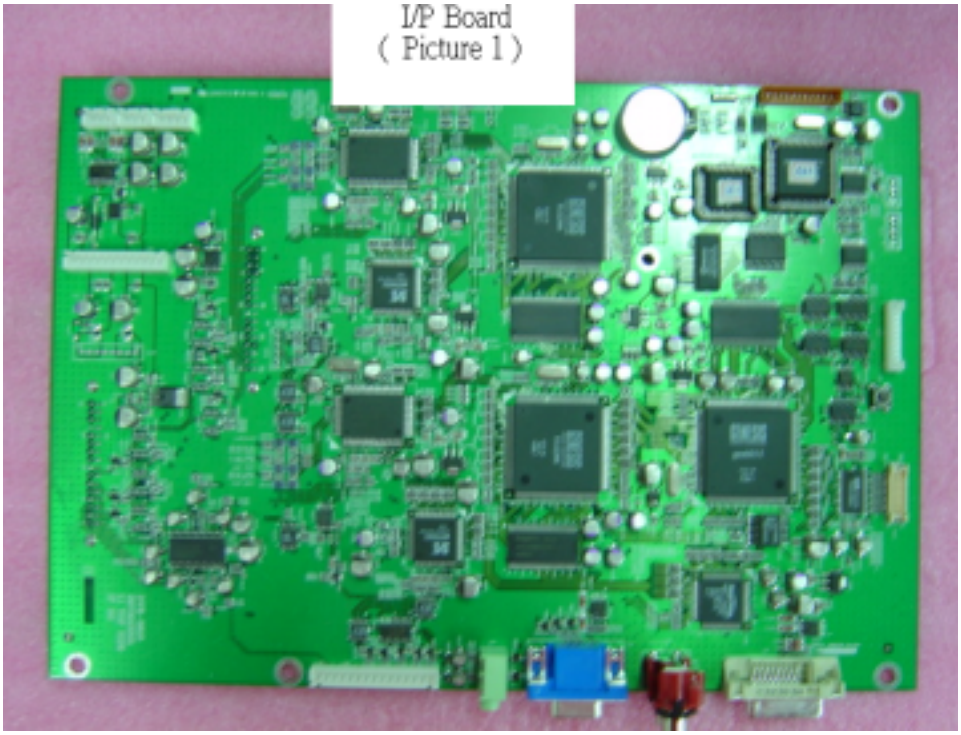

IP
BOARD
BUFFER
PC1
PC2
AV4
AV5
MUX
MUX
A/D
DECODER
MAIN
VIDEO1
VIDEO
DECODER
DEINTERLACE
DCDI
DIGITAL
DECODER
HDCP
DVI
SCALER/PIP
LVDS
ENCODER
LVDS OUT
PC1
PC2
AV4
AV5
MUX
MUX
A/D
DECODER
SUB
VIDEO2
VIDEO
DECODER
DEINTERLACE
DCDI
OSD


POWER
BOARD
L
N
PFC
REGULATOR
B+
B-
PFC PWM
CONTROL
PWM
OUT
PWM
CONTROL
TRANSFORMER
LOW
VOLTAGE
REGULATOR
+S5V
+5V
+8V
+12V
+20V
-20V
ERROR
AMPLIFER


DMD
DRIVER
BOARD
BUFFER
LVDS IN
LVDS
DECODER
DMD
DRIVER
DMD
VOLTAGE
0.8"16:9 DMD
WXGA HD2
1280X720
COLOR
WHEEL
CONTROL
FLASH

Hardware platform description

*I/P board PCBA(*Refer to picture 1)



The I/P board PCBA contains circuitry that manages the major functions of the RPTV, including video , computer signal , deinterlacing,DCDi,PIP , HDCP and keypad IR signal processing.

The 8052 microprocessor

A 8052 CPU controls the projector system functions. The processor operates on 5.0 VDC power at a clock frequency of 24.0 MHz.

The CPU reads and writes to all of the system peripherals to control system functions through its 8-bit data bus or two-wire I^2C bus. The CPU connects directly to the Flash ROM,EEPROM VDu, deinterlace, tuner ,scaler, DMD….. to check status, change modes and initialize the devices. The CPU also provides the ability to draw menus. It accomplishes this by writing data directly to external OSD IC

The video decoder

The video decoder on the controller ECA includes composite video , S-video and Ycbcr signal processing. The video decoder section does the actual selection of which video input to use for display. The I/O section transmits the signals to the TV decoder section CPU VPC 32300 at all times. Both inputs are hard-wire terminated in 75Ω. ESD protection is provided for both video inputs to protect the input stages from externally produced discharges.

The signal from either source is sent through a decoder and on to the digital video bus.

RGB input from the VGA connector

From the VGA input, a differential RGB signal goes to the input ADC (MST 9883). This chip looks at the vertical, horizontal. From there, the signal is converted to a 24 bit digital signal and sent to Scaler chip via the digital bus.

The VGA connector also accepts differential inputs for direct processing. A software lookup table is used to determine what type of signal is present. The input ADC sets up a phase lock loop and locks onto the frequency.

Video processing

From the digital video bus, the signal next goes to the frame memory in the Scaler IC (gm6015). Scaler manages the frame buffer to perform frame rate conversion. The frame memory is asynchronous, meaning the input rate is different than the output rate. From this point on the vertical and horizontal frequencies will not change. The frame memory accepts information a page at a time. When one page is displayed, another page is already in the frame buffer.

In the DVR5610, which has a native 1280 X 720 resolution, video inputs of 1280 X 720 and lower are converted by the frame buffer to 75 Hz frame rate. The converted frames are then passed to the Scaler IC for resizing up to 1280 X 720. The DVR5610 does not resize images larger than 1280 X 720.

In the DVR5610 Zoom model, Higher resolution is first resized down to 1280 X 720 by dropping lines and pixels, then converted by the frame buffer to 75 Hz frame rate, and finally passed to Scaler as 1280 X720 at 75 Hz. Video inputs of resolutions lower than 800 x 600 are converted by the frame buffer to 75 Hz frame rate and passed to the Scaler for resizing up to 1280 X720

The Scaler also provides the following support functions:

- Dual digital video inputs for MAIN and PIP display
- Dual bi- level / tri-level sync separators
- ”pixel-based” motion adaptive de-interlacing
- 2:2/3:2 inverse pull-down film processing
- arbitrary shrink/zoom scaling on both MAIN and PIP channels
- ”3D” noise reduction filter
- Color space conversion
- Color controls
- Video look up table(VLUT) and multi-image PIP display

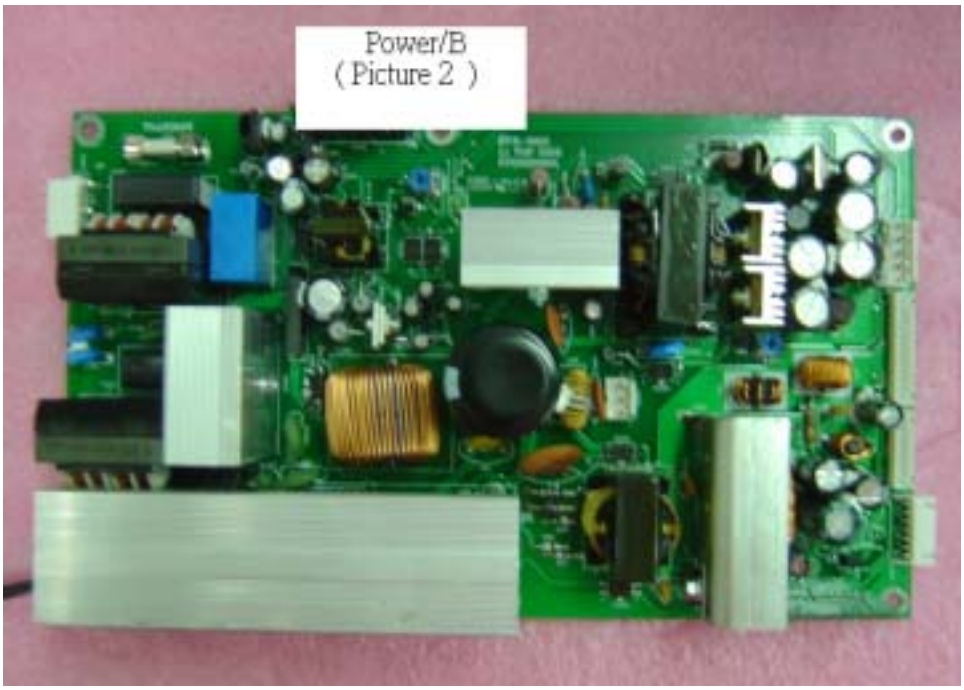
The Scaler provides high-quality resizing of VGA, SVGA, NTSC, PAL and SECAM inputs up to the 1280 X720

display resolution.. Scaler also generates the display timing signals (Vsync, HSync, and blanking) that are passed through the LVDS to the DMD Driver Circuit .

DCDi deinterlacing/enhancement chipset

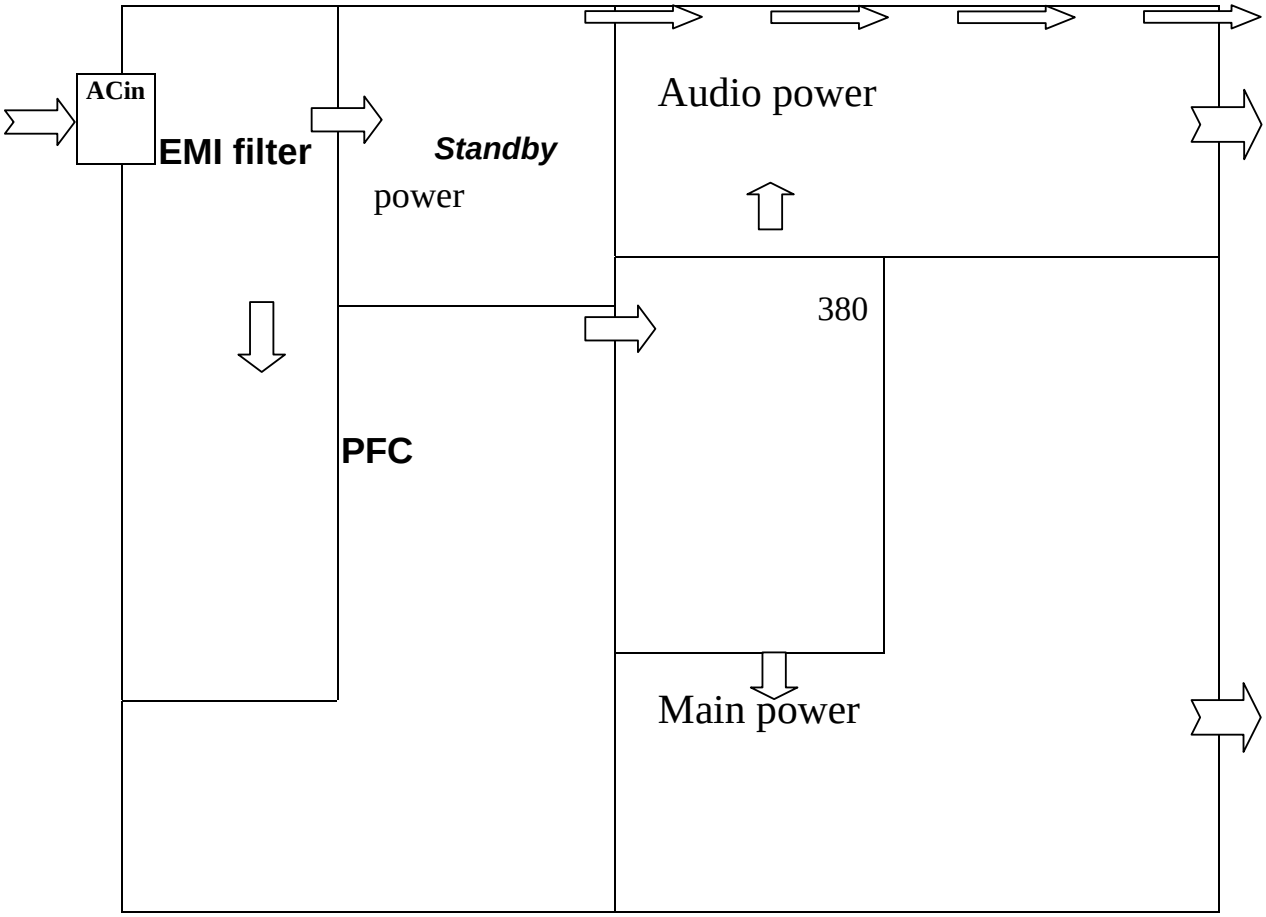
By Using FLI2300 video processing of Faroudja , Its feature including DCDi deinterlacing, reverse 3:2 pulldown film mode, motion adaptive 3D video noise reduction, cross-color artifact suppression and nonlinear enhancement functions.

Power supply PCBA(Refer to picture 2)



The power supply provides DC electrical power to all the electrical components in the rear projection television . DVR-5610 also contains a ballast that provides high voltage 380V necessary to strike the lamp when the rear projection television is powered up. The attached fan draws cooling air through the power supply, as well as through the rest of the rear projection television.

Location diagram of power board



The power supply consists of the **EMI filter**, **PFC** , **Standby power**, **Audio power** and **Main power**. The system required voltage is converted from the **Standby**, **Audio** and **Main power**, and the high voltage DC 380V from **PFC** is applied to the lamp and **Audio** and **Main power**.

Line voltage can directly input from 90Vac to 264Vac and boost to 380Vdc for the output, there are common choke L205 and L206 , and CX200, CX201 capacitors to form a **EMI filter** that can reduce noise and interference.

PFC is main for shaping the ac input line current waveform to correspond to that of the ac input line voltage, and boost input rectified voltage to 380Vdc for preregulator.

The output voltage 5Vs is converted from **Standby power**, when the system is going to the standby mode, 5Vs is the only output voltage. After the Power_ON (CN205 pin12) is high, then other voltage outputs are starting up, otherwise there is only 5Vs. The output voltage +20V, -20V are converted from **Audio power**, they are used by audio module, and output voltage 5.1V, 8V, 12V are converted from **Main power**. They are the main electrical power for whole electrical system.

Short circuit protection

All voltage outputs shall have short circuit protection. Only 5Vs output shall be auto recovery after the short condition removed.

Over voltage protection

All voltage outputs shall have over voltage protection, besides –20V(6.24V for 5.1V, 5Vs outputs, 14.9V for 12V, 12Vs outputs, 9.06V for 8V output, 25V for 20V output, 415V for 380V output)

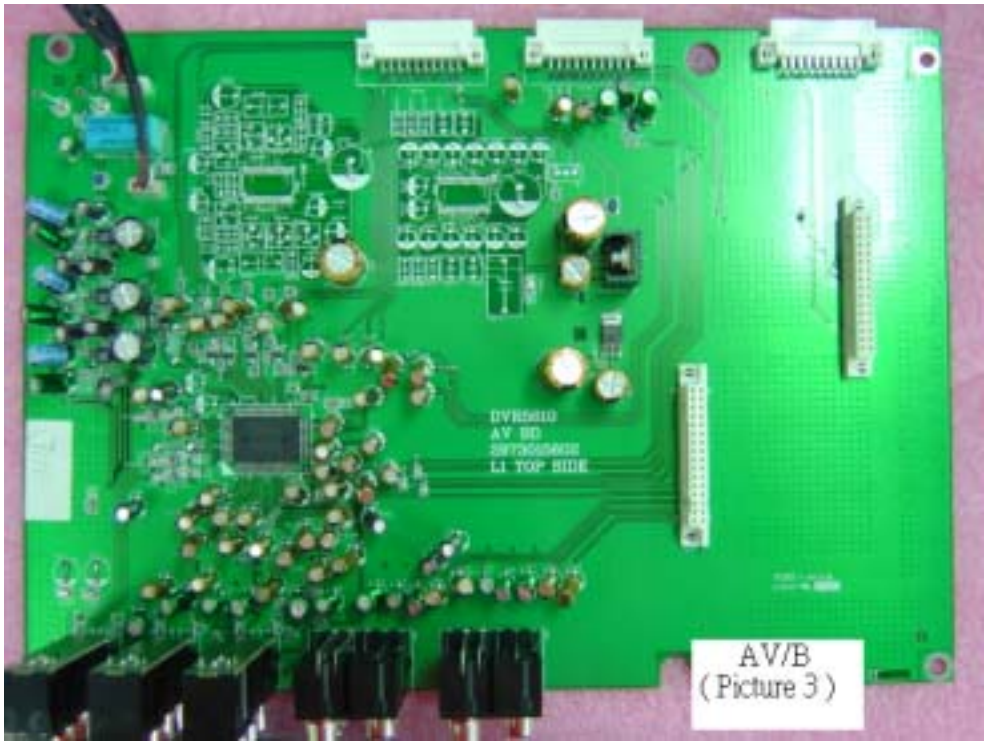
Under voltage protection

All voltage outputs shall have under voltage protection, besides +/-20V and 380V outputs(4.12V for 5.1V, 5Vs outputs, 9.7V for 12V, 12Vs outputs, 6.92V for 8V output)

Over temperature protection

There are 2 components TH200 on and TH201 that can sense the temperature on the heat sink HS200 and HS201. When an abnormal condition is happened to make the temperature on HS200 or HS201 be more than 105’C, then TH200 or TH201 will be open to shutdown **PFC** or **Main power**.

A/V board PCBA(Refer to picture 3)

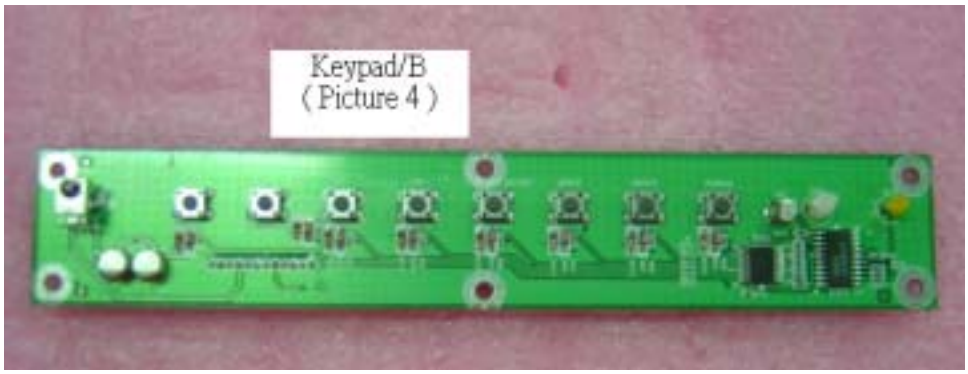


For multi input audio and video signal ,composite , S-video , component .Video go to I/P board And audio go to audio board and A/V output.

Audio/Video switch

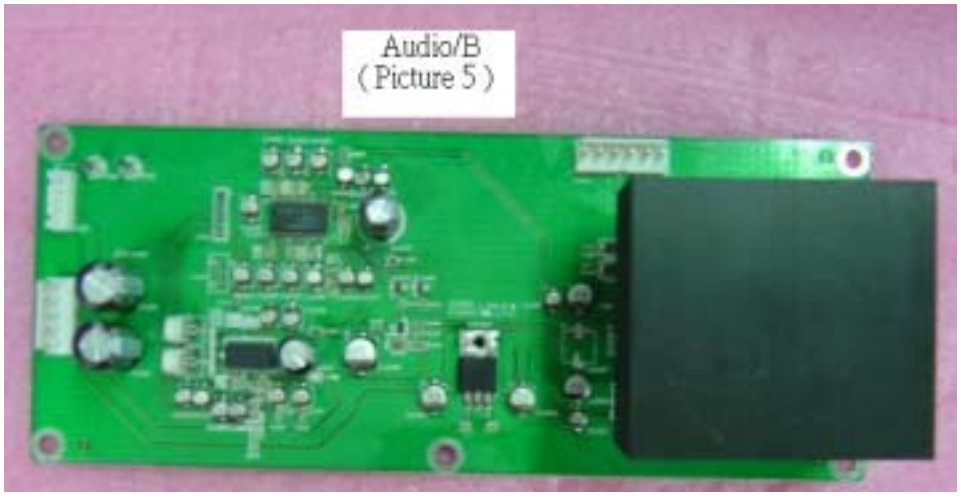
The CX2069Q is a 7-input, 3-output audio/video switch featuring I2C bus compatible for TVs. This IC has input pins that are compatible with s2 protocol.

Keypad ECA & IR PCBA(Refer to picture 4)



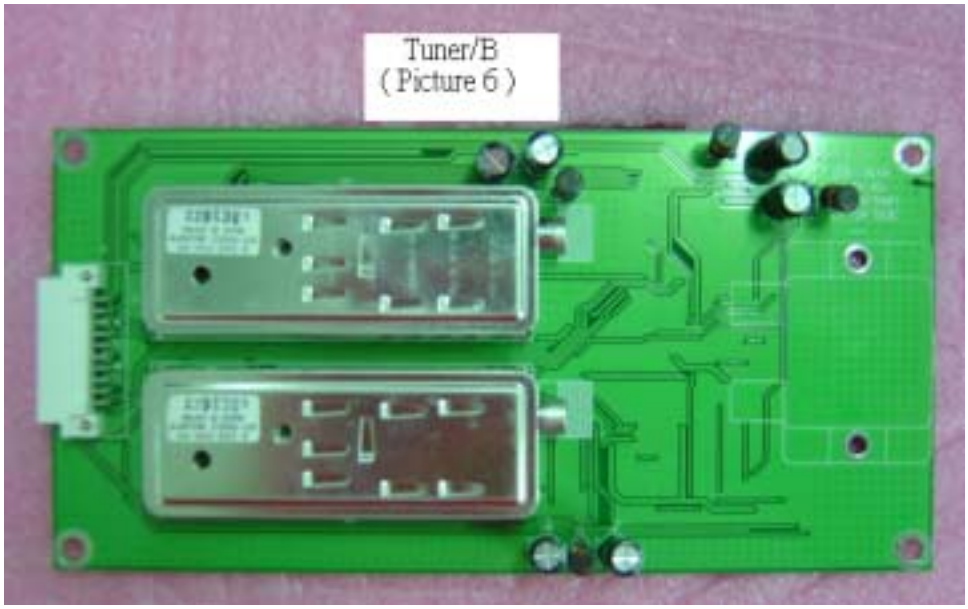
The keypad provides the user access to all of the controllable functions on the projector. It receives keypad signals from the keypad attached to the top case, and then processes them before passing the signals to the main board for command processing. also contains an IR receiver that collects and processes the IR signal, which is then passed to the I/P board ECA.

Audio board PCBA(Refer to picture 5)



The audio board have one stereo amplifier to driver 15W speaker and SRS / BBE processing.

Tuner board PCBA(Refer to picture 6)



Fans

There are three fans in the RPTV. One fan, fastened to the top of the Lamp, exhausts warm air generated by the Lamp portion of the optical engine through the Rear housing. The 2nd fan, which fastens to the top of the perforated metal housing of power board to cooling power module and DMD module, 3rd Fan which fastens to the top of the perforated metal housing of ballast board to cooling ballast module and lamp.

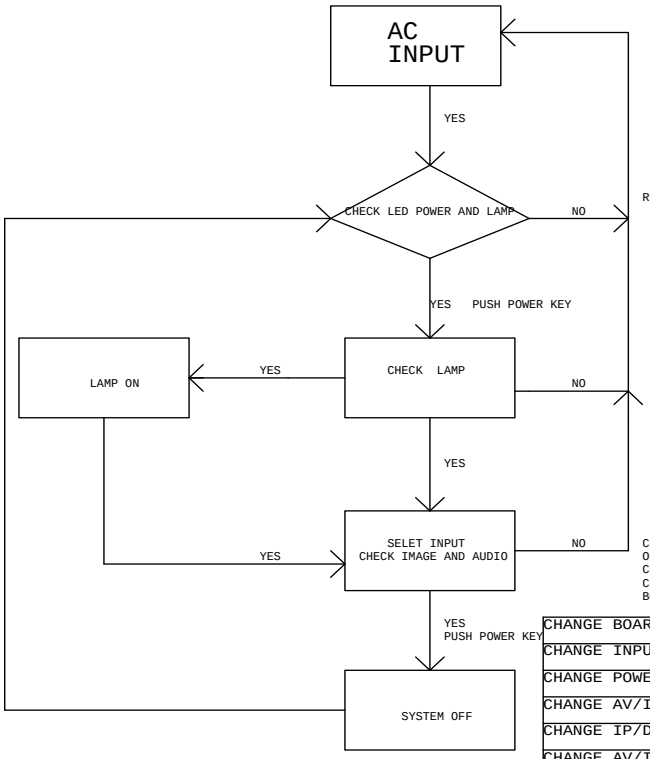
Operating system

Flash EEPROM device

The projector stores its start-up and operating software code in a flash EEPROM device located on the main board ECA. The flash EEPROM contains the following types of code:

- ***System code*** The system code contains instructions required for system initialization and operation. As the projector initializes, the system code reads and verifies the integrity of other data stored in the EEPROM, such as lamp timer data and user-entered menu settings.

IV. Troubleshooting Flow Chart



POWER LED	STATUS LIST	FAIL
2 GREEN	1 AMBER	CHECK FAN CONNCTOR/FAN FAIL
3 GREEN	2 AMBER	CHECK 370V,5V LAMP,BALLAST
5 GREEN	2 AMBER	DMD FAIL

CHANGE BOARD	AV1,AV2,FRONT AV	PC1,PC2,DVI	AV3,AV4	TV	AUDIO(NO)
CHANGE INPUT		CHECK SOURCE			
CHANGE POWER		CHECK POWER			
CHANGE AV/IP BOARD	NO IMAGE				
CHANGE IP/DMD BOARD		NO IMAGE			
CHANGE AV/IP BOARD			NO IMAGE		
CHANGE TUNER/AV/IP BOARD				NO IMAGE	
CHANGE IP/AV/AV AMP BOARD					PC
CHANGE AV/AV AMP/IP BOARD					AV1,AV2,FRONT A
CHANGE IP/AV/AV AMP BOARD					AV3,AV4
CHANGE TUNER/INTERFACE/AV/AV AMP BOARD					TV
CHANGE SPEAKER					ON SOUND
CHECK CABLE CHANGE DMD/IP BOARD					NO OSD

Table of Contents

1. NO POWER (POWER AND LAMP ON/OFF LED ARE OFF)

2. NO PROJECTION LIGHT

3. OSD IS NOT OPERATING

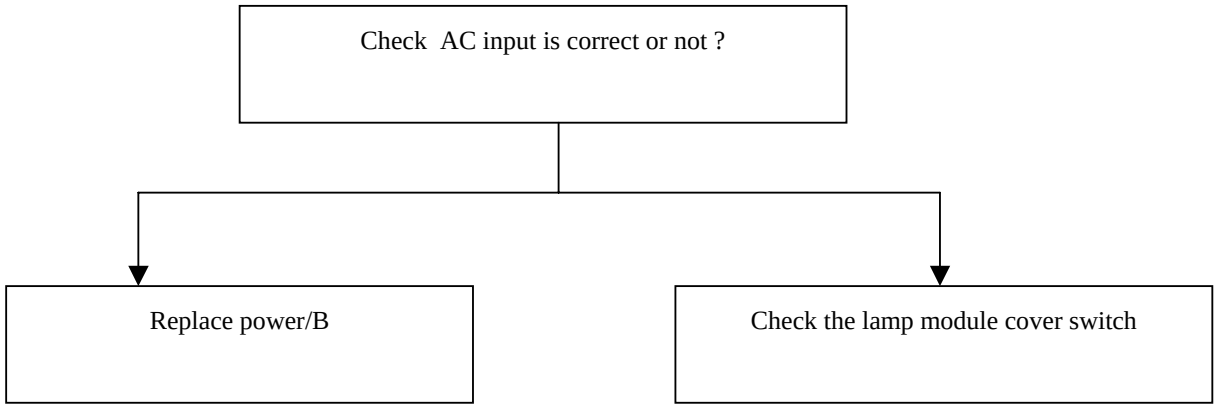
4. NO VIDEO

5. NO AUDIO

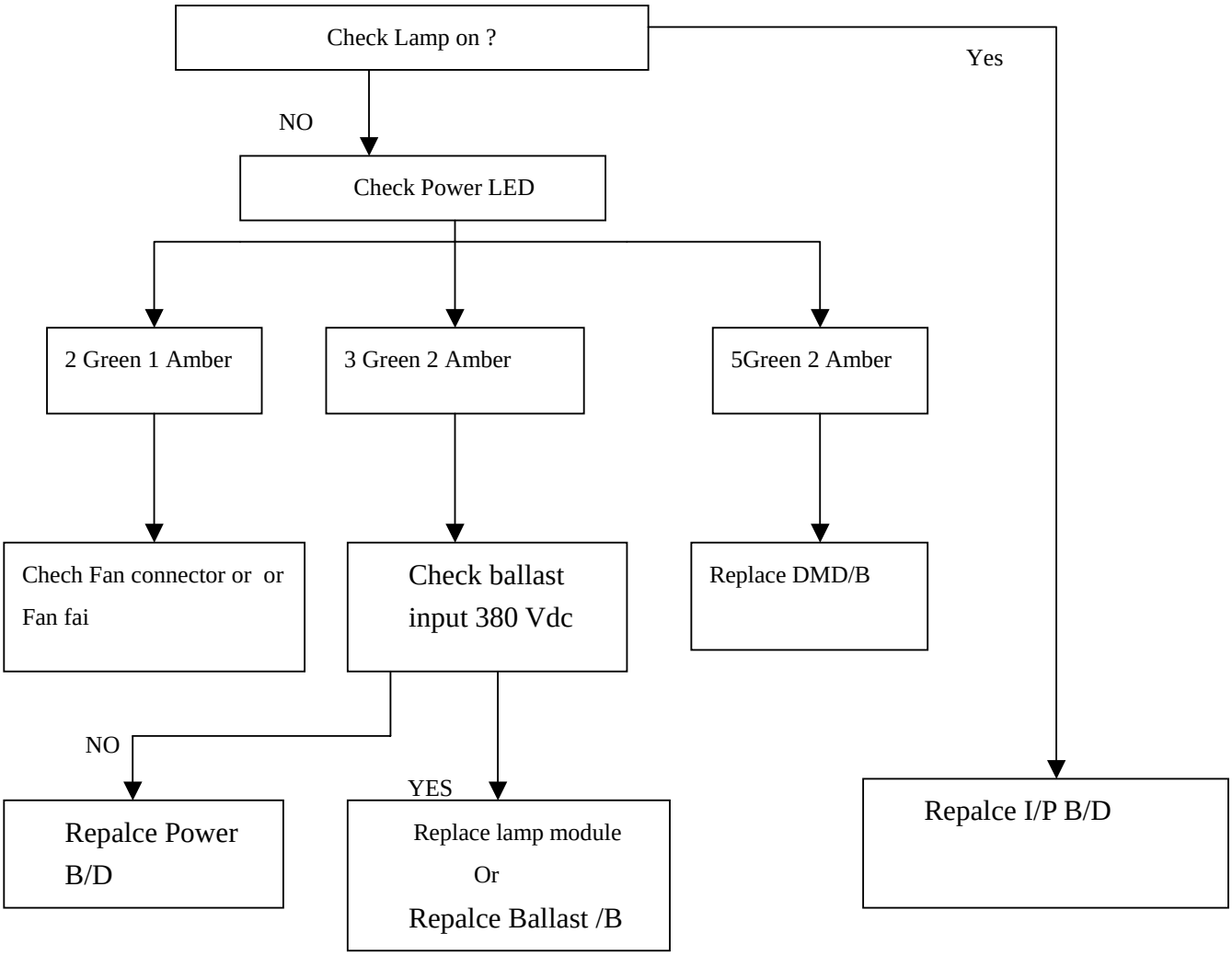
6. NO TV

7. PROTECTION IMAGE IS ABNORMAL

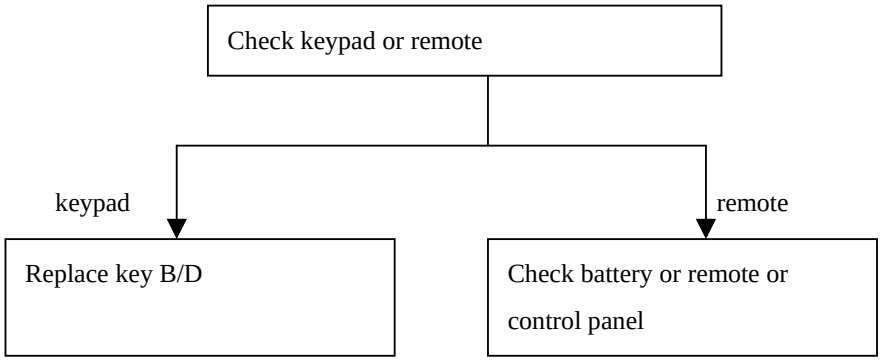
1. NO POWER (POWER LED OFF)



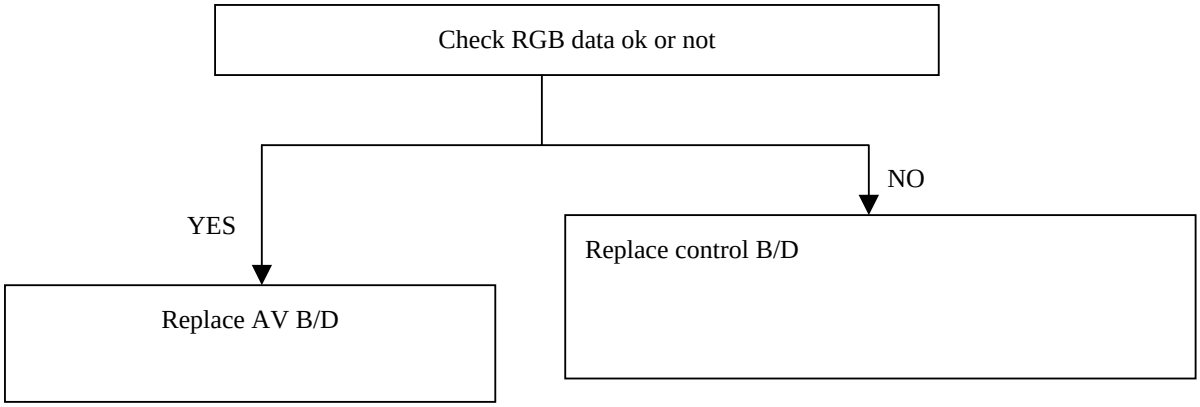
2. NO PROJECTION LIGHT (NO PICTURE)


Check Lamp on ?
Yes
NO
Check Power LED
2 Green 1 Amber
3 Green 2 Amber
5Green 2 Amber
Chech Fan connector or or Fan fai
Check ballast input 380 Vdc
Replace DMD/B
NO
YES
Repalce Power B/D
Replace lamp module
Or
Repalce Ballast /B
Repalce I/P B/D

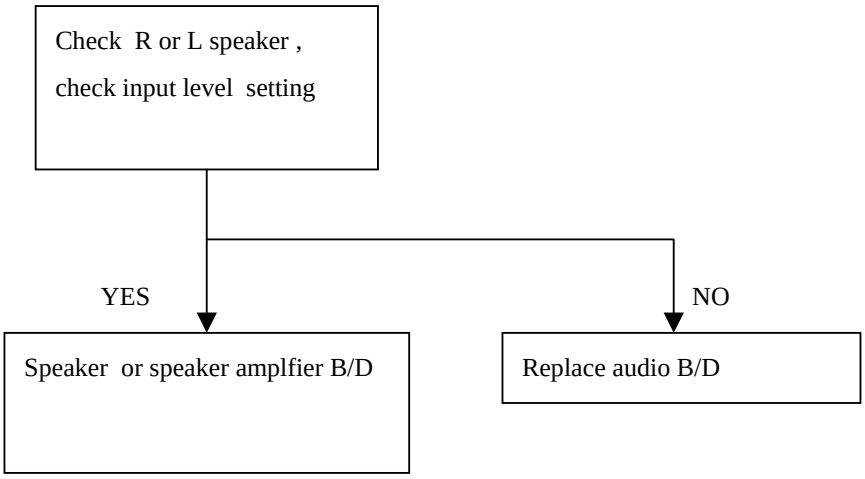
3.OSD NOT OPERATING



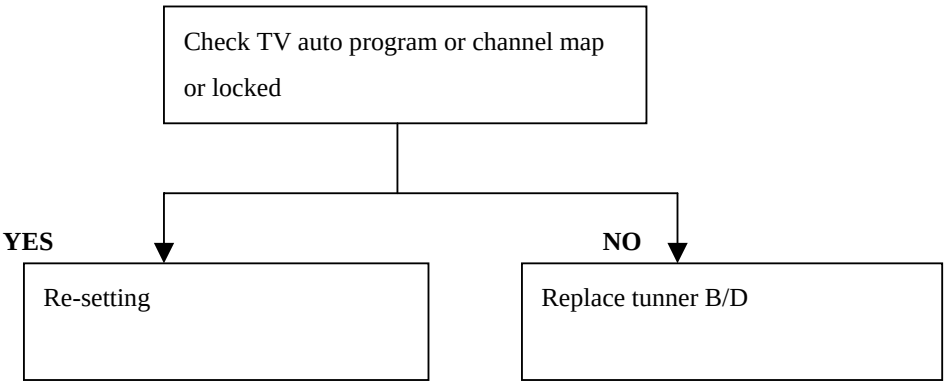
4. VIDEO NO IMAGE(CVBS ,S-VIDEO ,Y/Cb/Cr)



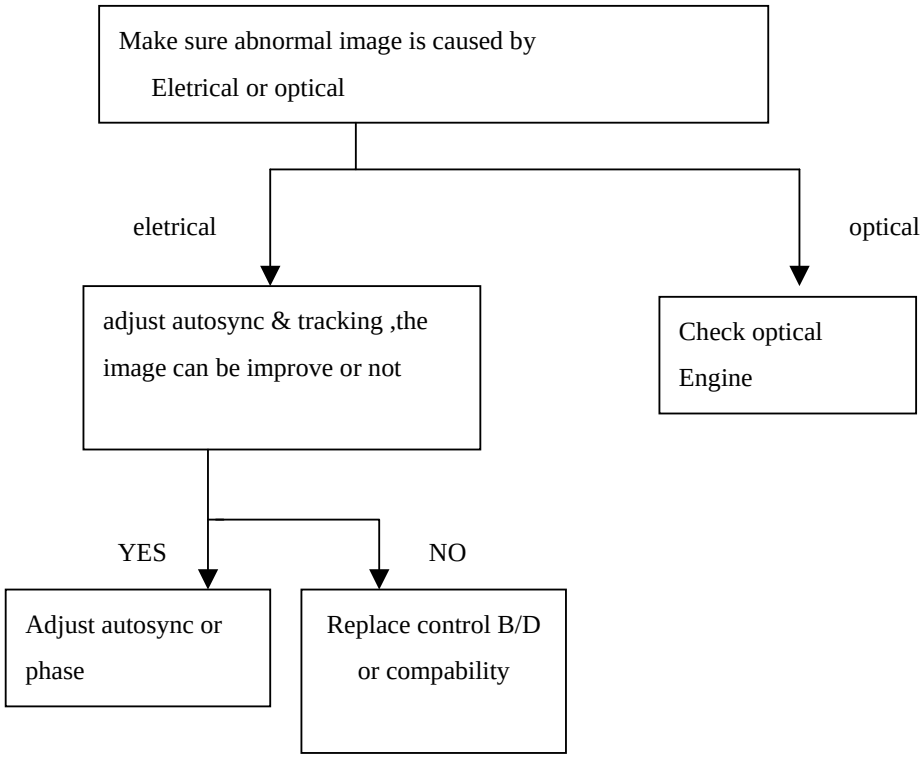
5.NO AUDIO



6. NO TV OR LOST SOME CHANNEL

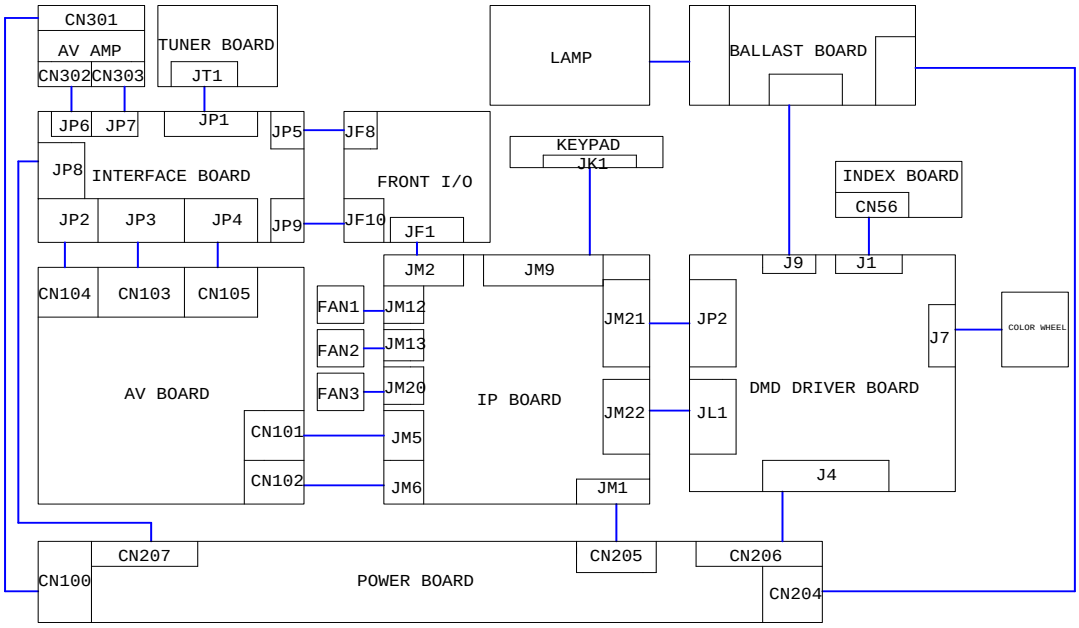


7.PROTECTION IMAGE IS ABNORMAL

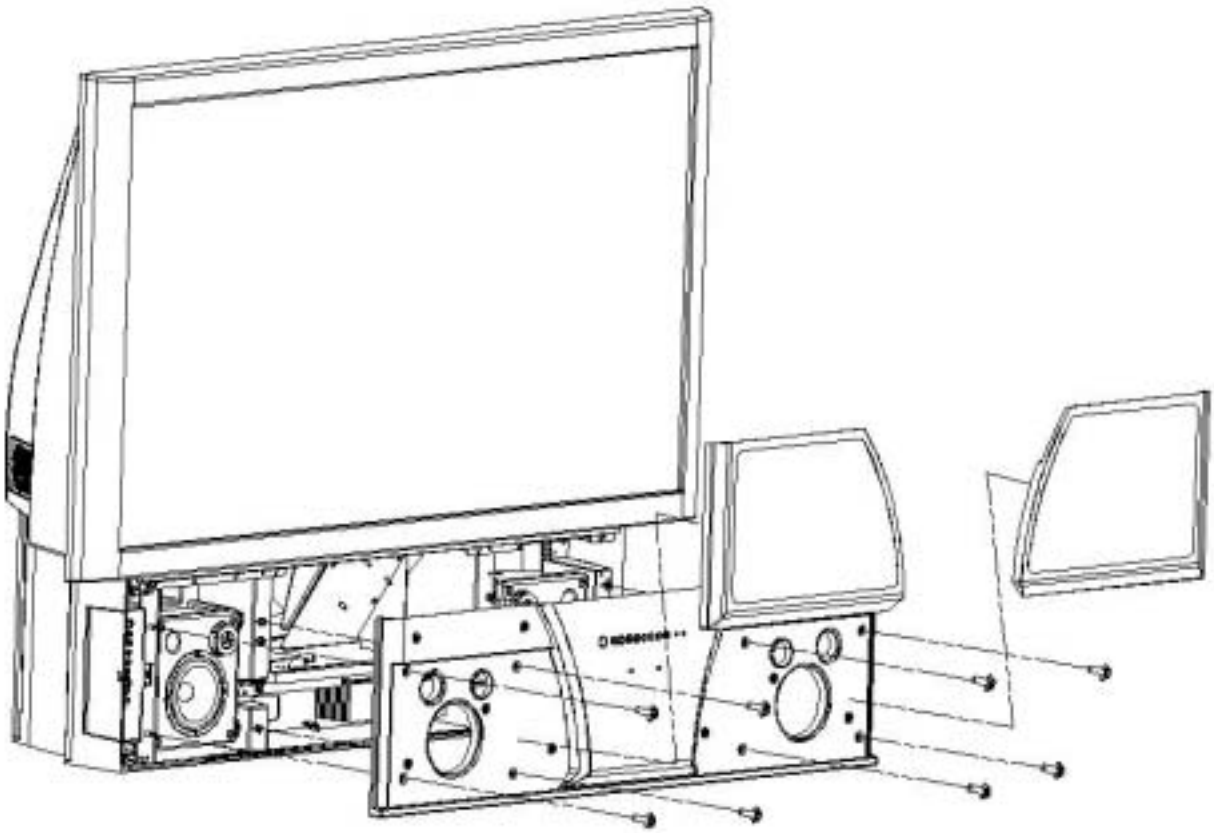

Make sure abnormal image is caused by
Eletrical or optical
eletrical
optical
adjust autosync & tracking ,the
image can be improve or not
Check optical
Engine
YES
NO
Adjust autosync or
phase
Replace control B/D
or compability

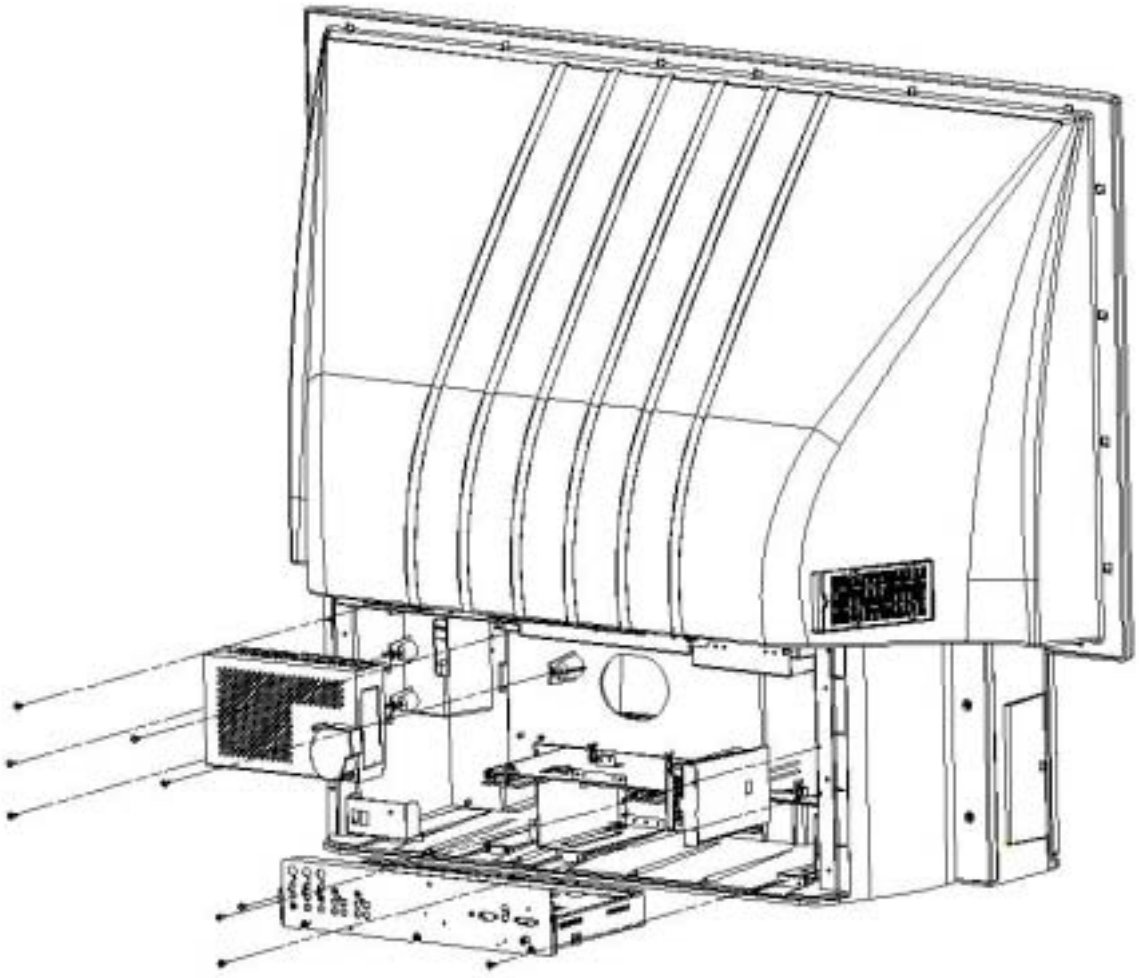
.

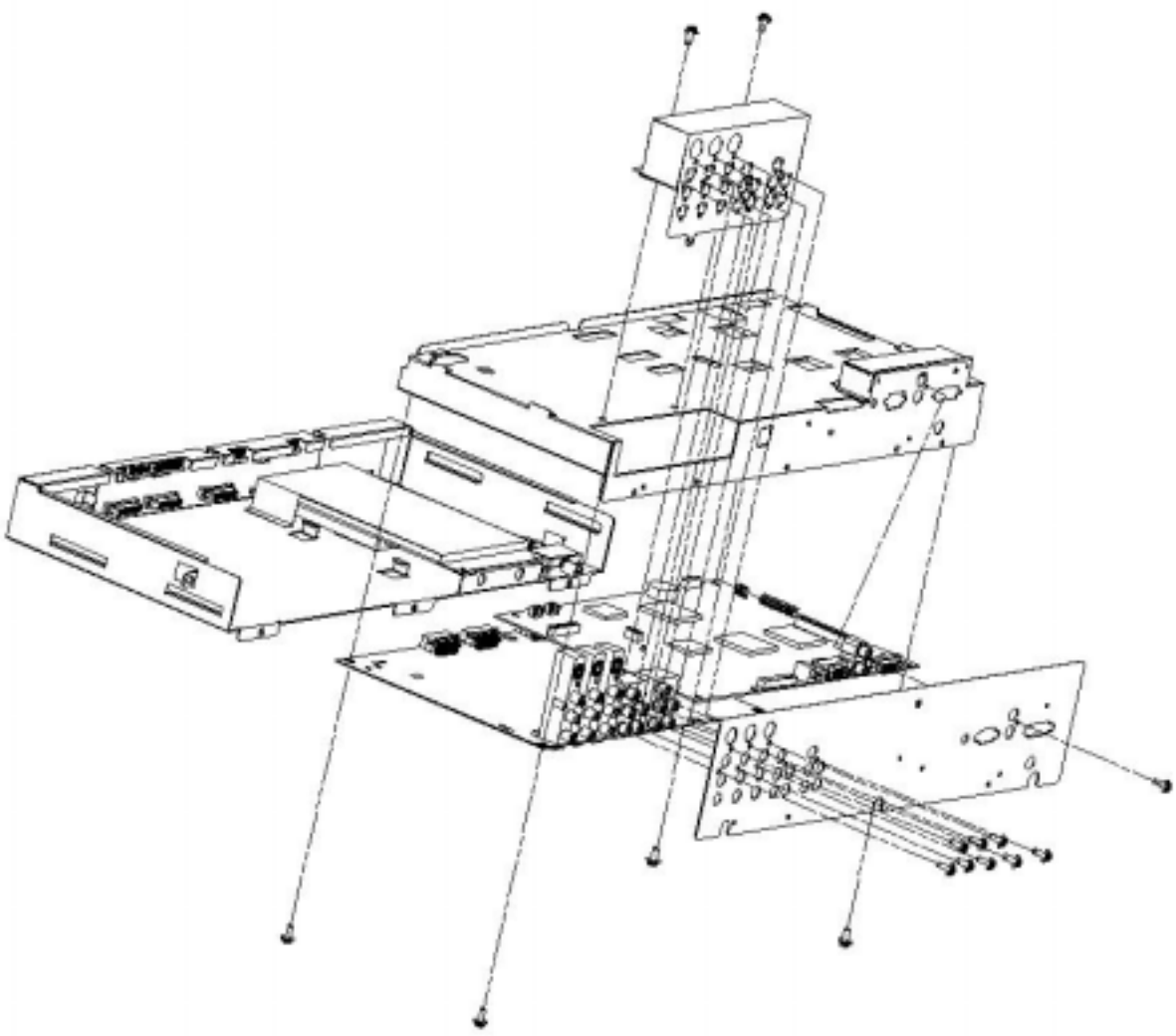
V. PCB Layout Diagram

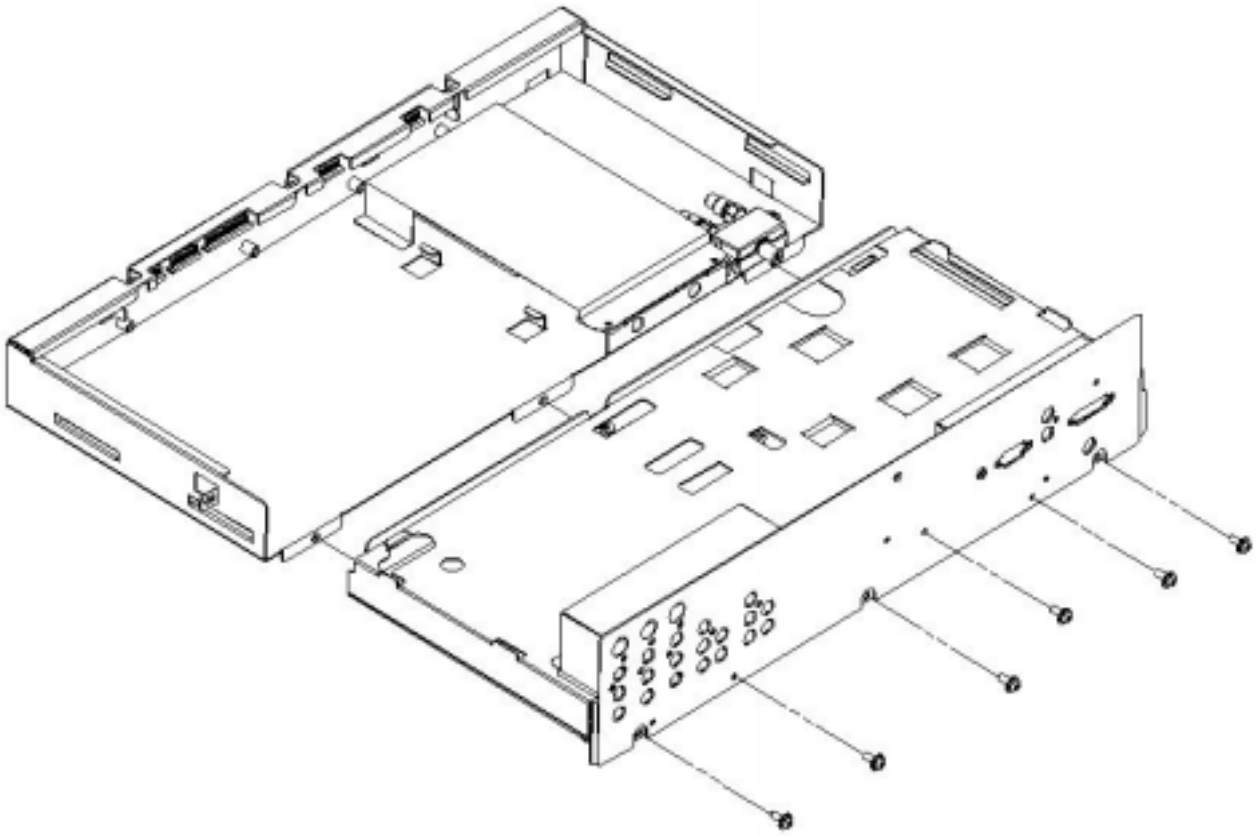


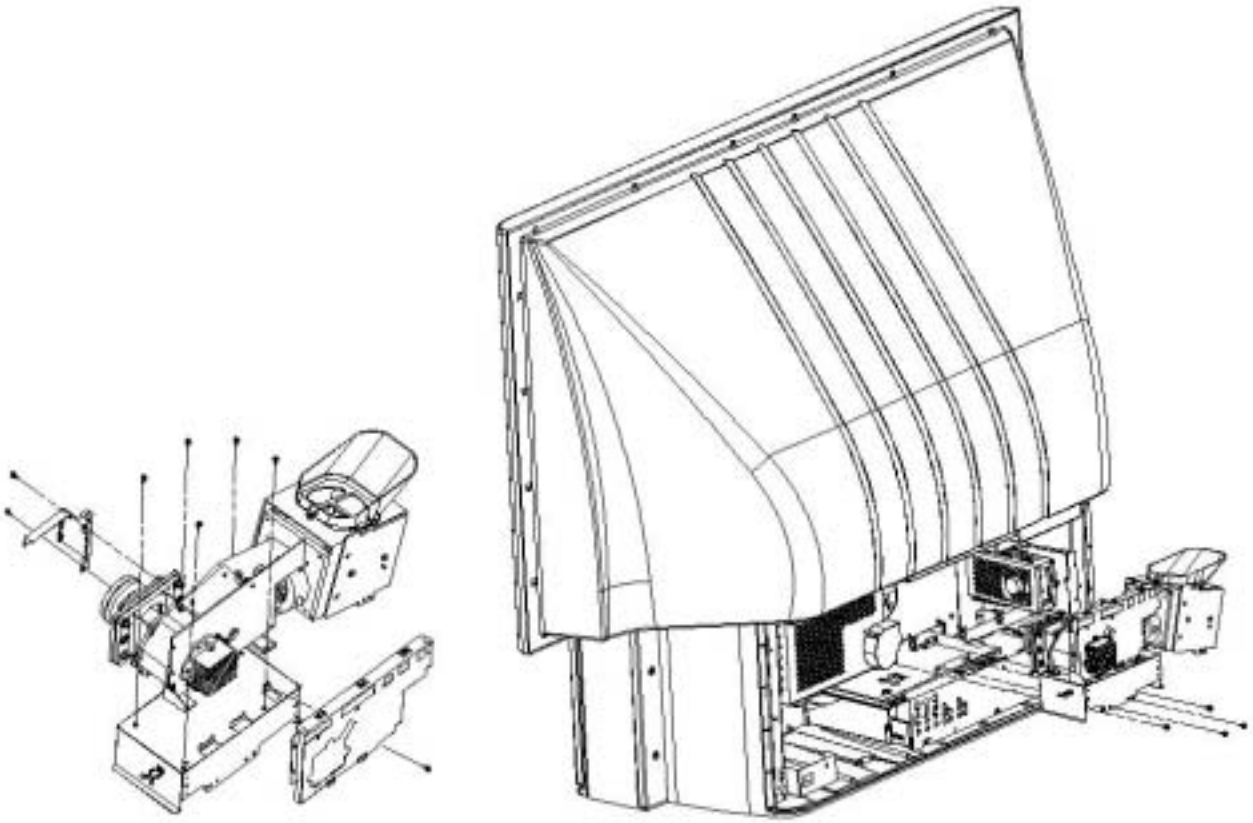
VI. Mechanical Assembly

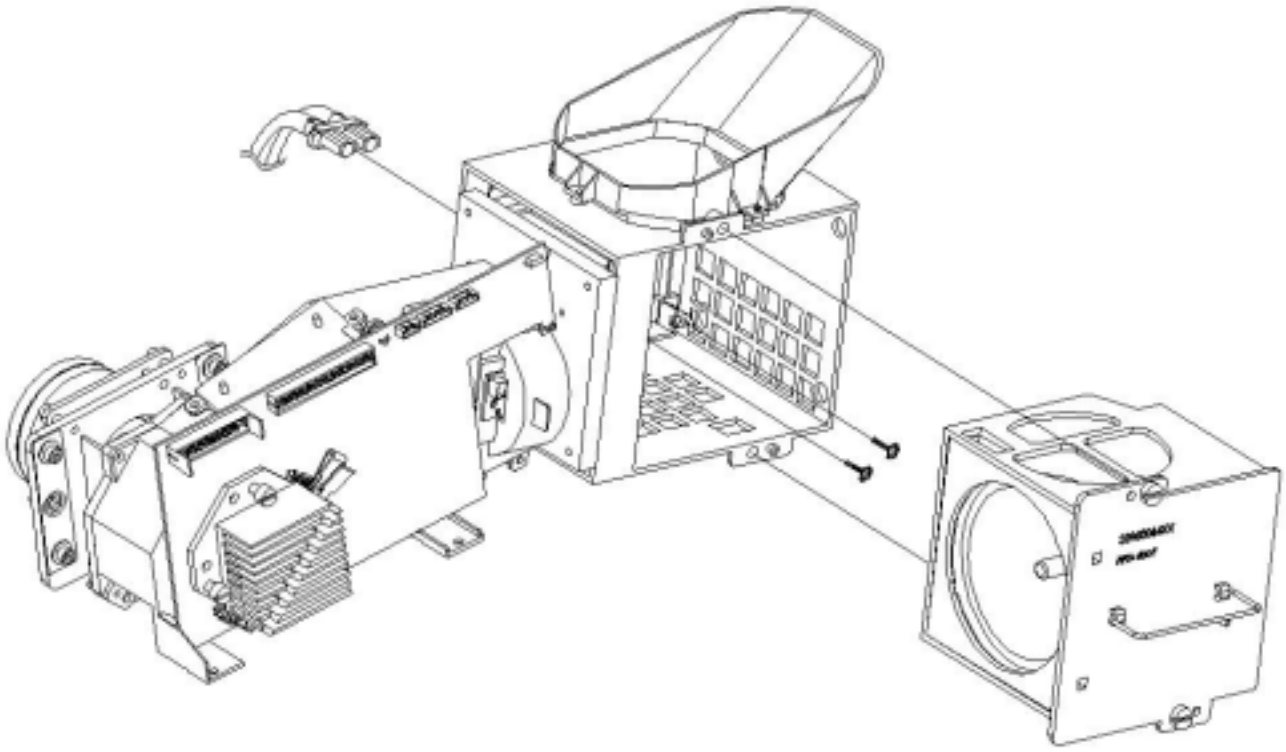












VII. Adjustment of Picture

ENTER FACTORY MODE

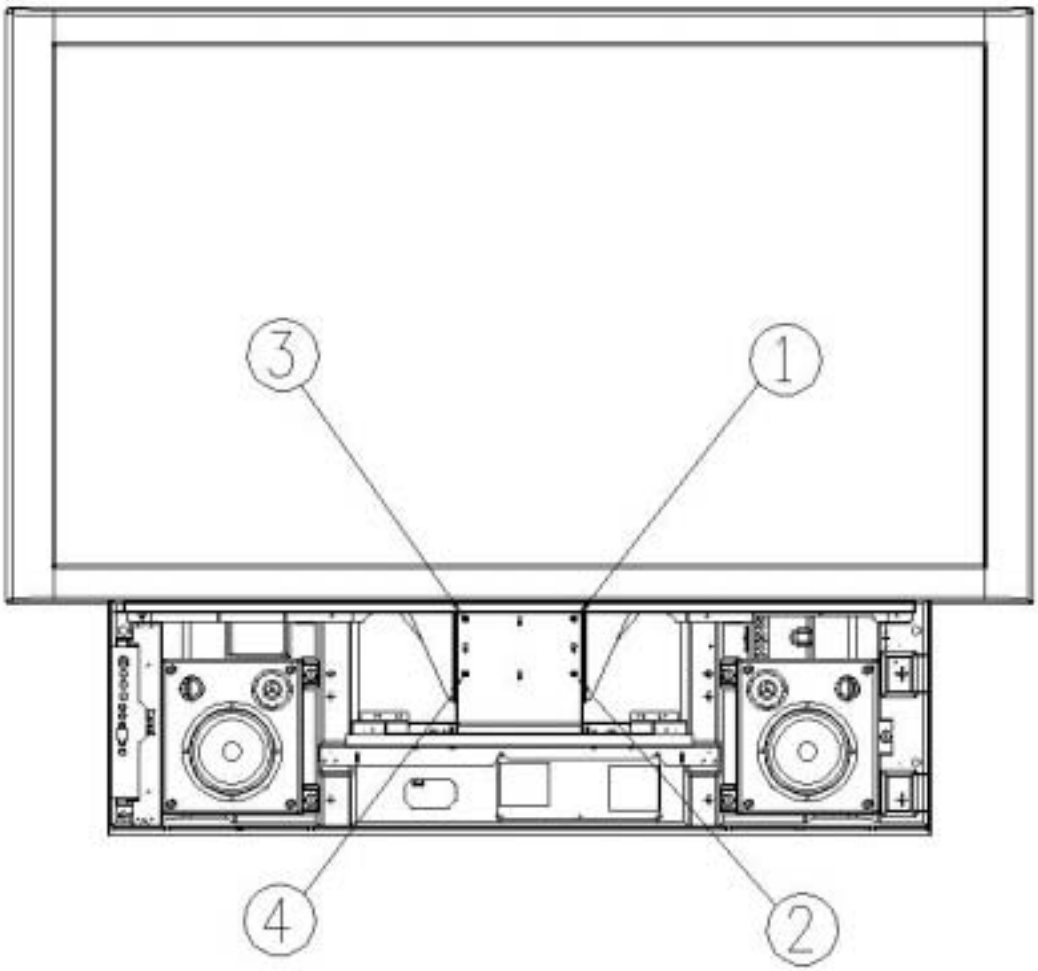
Step1. Press “INFO” on remote or use OSD: MAIN MENU→SPECIAL FEATURES→SYSTEM INFO

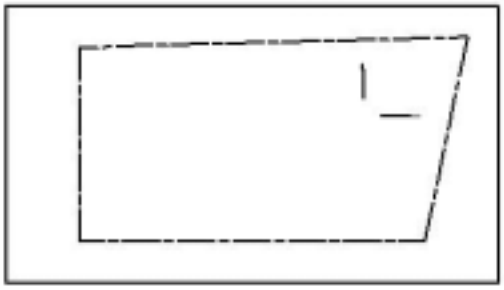
Step2. Press “VOL -” and ”CH -” and “OK” Simultaneously.

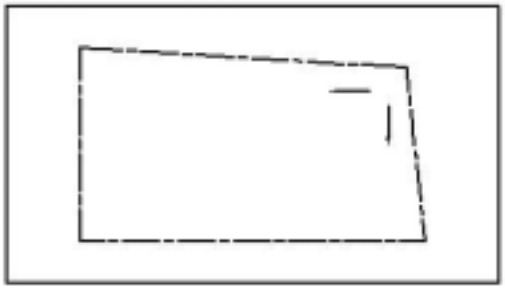
Step3. Enter “ COLOR TEMPERATURE ”

Step4. Enter “ TEST PATTERN ”

Step5. SELECT “ PATTERN “

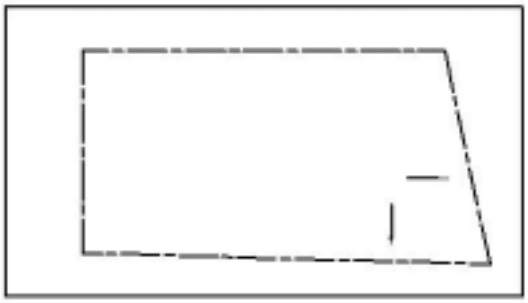

3
1
4
2

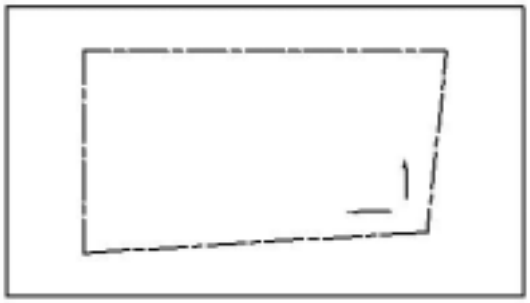




1

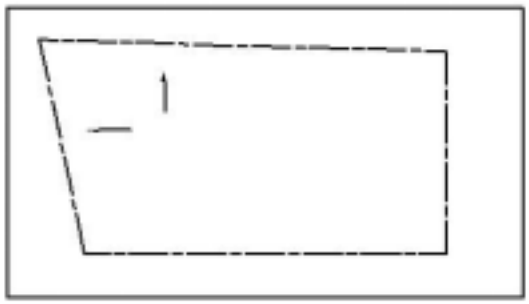
1





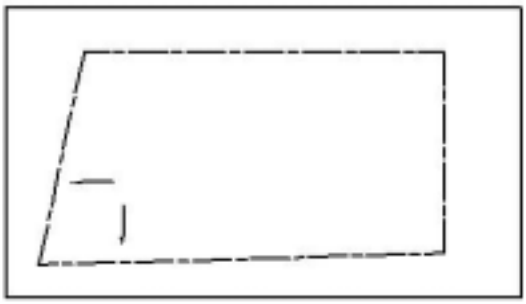
2

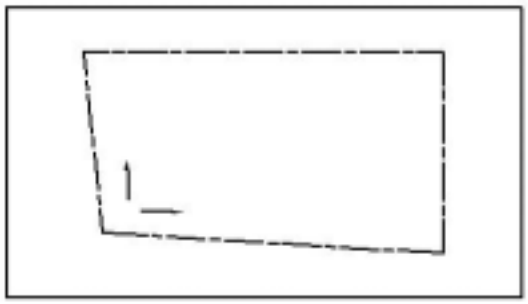
2



3

3





4

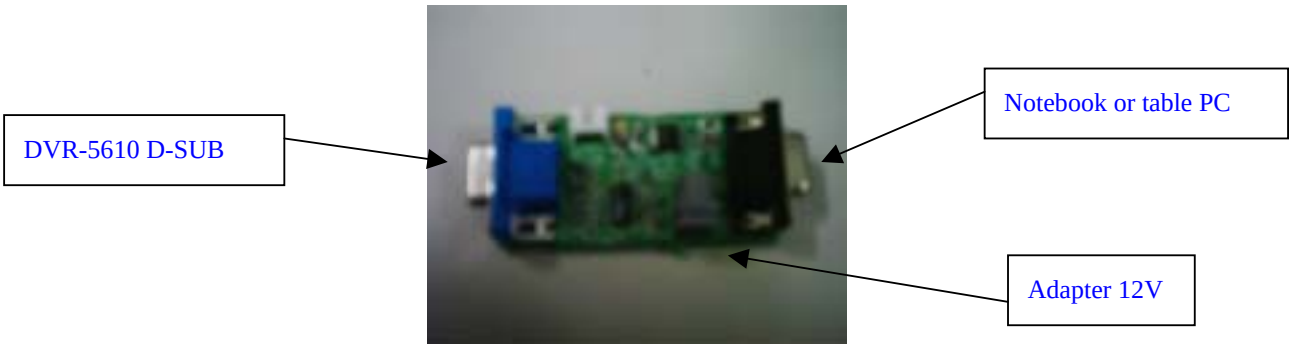
4

VIII. Recommended Spare parts list

DELTA P/N:	DESCRIPTION
3797048800	Lamp module assy(Philips)
3797036500	Optical module
5050001910	Projector Lens
3250308300	UV-IR
5059702081	DMD panel
3255003500	Hardcoat
3255002600	Screen Fresnel
3255002700	Screen Lenticular
3797047300	Ballast assy(Philips)
5600200180	DMD Driver / BD
5600200207	Power / BD
5600200200	I /P Board(Control / BD)
5600200205	Front I/O BD
5600200228	Interface / BD
5600200256	Audio / BD
5600200204	Key Pad / BD
5600200201	AV / BD
5600200210	Tuner / BD
3620006311	Lamp Fan : DC Fan WFB1212L-ROO
3620790411	Power fan : Blower BFB0712L-R00
3620617811	Ballast Fan : AFB06012MC-R00

IX. Download Procedure (USE RS-232)

Step1:use download device to connect after(as below an attached),pull out power cord.

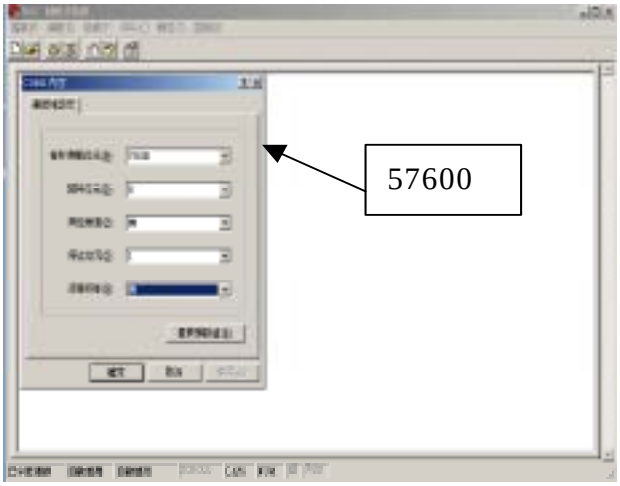


Step2: start→program sets→communication→super terminate

Step3: input link name,ex:5610.

use link input source : choice link port

Select : 57600, 8, N, 1, N(setup link port: as below attached)



Step4: choice "transmit 傳送" ,then setup as below:

Xmodem